

BROOKLYN TECHNICAL HANDBOOK

Brooklyn
Tech
Survivors
.com



1937

The
HANDBOOK
OF THE
BROOKLYN TECHNICAL
HIGH SCHOOL

29 FT. GREENE PLACE

BROOKLYN, NEW YORK

ALBERT L. COLSTON, *Principal*

CONTENTS

	<i>Page</i>
Preface	3
Foreword	5
Faculty	6
Course of Study	13
Department Syllabi	20
General Information	49
General Organization	75
Cheers and Songs	91
Athletics	95
Clubs and Squads	103
BTHS Style Book	112
BTHS Vocabulary	122
BTHS Reading List	140
Index	173

Published by

THE ENGLISH DEPARTMENT

VOLUME XI

APRIL 1937

PREFACE

The Brooklyn Technical High School is a school of applied science. It is the only polytechnic high school in New York City that is chartered and approved by the State Department of Education.

The general aim of the Technical High School is to give a thorough preliminary training to those who expect to find a future place in the technical world, in manufacturing, or construction, or who wish to join the technical professions, such as the various branches of engineering and architecture, applied chemistry, and applied electricity. No narrow specialization is permitted; on the contrary, the aim is to give a broad training in mathematics, science and technology, as well as a good liberal secondary education.

No Industrial (Vocational, Trade or skilled hand-work) courses are given.

We do not offer the General (Academic) Course nor do we give Commercial subjects.

In order to progress in this school and profit from this course of study, a boy should have marked ability in mathematics, a decided interest in science, plus a general intelligence that can be rated well above the average. Marked mechanical aptitude is desirable but not essential.

The following pages of this Handbook give the course of study in the Brooklyn Technical High School, the syllabi of all subjects, and a survey of extra-curricular activities, athletic and non-athletic. A careful reading of the course of study will show the prospective Tech student whether he is capable of doing the work and what opportunities are offered him. The sections on extra-curricular activities inform the student who is already in the school of the possibilities for recreation and self-improvement. The BTHS Book List is a guide to interesting and profitable leisure reading.



MR. COLSTON

FOREWORD

To the Pupils of
BROOKLYN TECHNICAL HIGH SCHOOL:

In the business and industrial world one must *fit in* or *get out*. Just as modern leaders of industry employ personnel officers whose work it is to select employees and to advise them how they can best fit in with their jobs, so we of Brooklyn Technical High School have our personnel officers—the group advisers and the principal. We are ready at all times to help you adjust yourself to your work and to our organization.

Since you can best prepare to *fit in* when you secure your first job by *fitting in* here, I wish to give you a few rules that will help.

Have a definite aim in what you want to do. Determine as early as possible what you will do after being graduated; thus you will appreciate how your various studies are helping you to realize your life's ambition.

Get some healthful exercise in the open air every afternoon, for your brain works best when supported by a healthy body.

Learn to plan your work for each day so as to minimize wasting your time. Arrange to study two and one-half hours each evening. Apportion your time for the study of each subject, spending more time on those subjects which are difficult for you.

Be loyal to your class and to your school; then you will be loyal to your employer, to your state, and to your country.

Render helpful service to your fellows when occasion demands; then you will later help the men about you in business and in your community. Men as well as nations are now learning that they must cooperate to exist.

Be honest and reliable. This will mean more to you than having a brilliant intellect. The confidence of your fellow-men in your word will be more valuable to you than the acquiring of prizes for excellence in any line of endeavor.

Fit in or *get out* is the stern, harsh command of the business and professional world. I trust I shall never have to say "Get out" until I hand you your diploma on your Commencement Day. Then I will say it with a smile, knowing that success in a larger field is just ahead of you.

ALBERT L. COLSTON

FACULTY

ALBERT L. COLSTON, *Principal*

RALPH BREILING, *Administrative Assistant*

HENRY H. WIKEL, *Administrative Assistant*

ANNEX

Ryerson Street Annex, P. S. 69

HARRY A. COHAN, *Teacher in Charge*

GROUP ADVISERS

Ernest H. Koch, Jr., Louis S. Odell.....	Group A
William W. McHugh.....	Group B
Henry H. Wikel.....	Group C
Isaiah S. Abrahams.....	Group D
Herman E. Blenderman.....	Group E
Max Kohn.....	Group F
Harold E. Taylor.....	7
A. Barnett Langdale.....	8

LIBRARIANS

William H. Duncan

Russell S. Jones

Margaret I. Lee

PLACEMENT ASSISTANT

Andrew J. Trimble

CLERICAL ASSISTANTS

Rae Epstein	Mrs. Elizabeth L. Malloy
Mrs. Louise Z. Koch	Thomas B. Smith
Mrs. Alice T. Long	Mrs. Freda S. Wilkins

JUNIOR CLERICAL ASSISTANTS

Mrs. Sara Alpern	Sarah F. Newman
Mrs. Frieda G. Rosand	

Technical Drawing—Freehand

George C. Evans, *Chairman*

Walter R. Bossard	Mrs. Fluvia H. Nicol
Elston E. Johnston	Louis H. Sandhausen
Henry B. Knowles	Mrs. Dorothy C. Thornton
	Mrs. Ethel M. Torning

Technical Drawing—Mechanical

Jacob M. Gray, *Chairman*

Isaiah S. Abrahams	L. Leland Locke
Otto B. Arland	William W. McHugh
Herman H. M. Berkhout	Marcus Mayer
Anton Buchbinder	John W. E. Olin
Augustus W. Collins	George F. Orthey
Harry C. Furphy	Emanuel R. Posnack
Harold R. Gramling	Philip Puro
Abraham Grossman	Emanuel Rosenthal
Frank L. Hazzard	Lawrence Solowey
Jacob A. Homer	James Striffler
Solomon Koral	August C. Weber

Technical Drawing—Electrical

Harold E. Taylor, *Chairman*

Otto B. Arland	Anton Buchbinder
----------------	------------------

English

Florence A. Boole, *Chairman*

Jessie Ashworth	Edwin Katz
Emanuel Bloom	A. Barnett Langdale
Rebecca Bookman	Benjamin G. Levine
Van Rensselaer Brokhahne	James F. Macandrew
Edna E. Coleman	Pearl Mayefsky
Daniel F. Daly	Horace McNeil
Janet Emanuel	Maxim Newmark
Arthur Franzen	Marjorie G. Peabody
Howard Garrett	William A. D. Rhind
Sidney Gold	Maurice F. Riedman
Ruth M. Goldstein	Mrs. Katherine A. Schofield
Mrs. Lillie H. Greenberg	Howard E. Shaw
Milton L. Greenblatt	Jerome Shostak
John F. Gonoud	Dorothy Strong
Phillip Gucker	Emile Tron
Wesley S. Jackson	Joseph V. Waring
	Paul Weinstein

Health Education

Ira Bloom, *Chairman*

Jacob Feuerstein	William G. Laub
Isidor H. Goldberg	Joseph L. Milde
Henry Goldman	Victor Onorato
Lewie M. Grummond	Arthur S. Peck
Dave Halperin	Christopher Prestopino
	Frank Salz

History and Civics

James L. Tobin, *Chairman*

Gordon Atkins	Dorothy C. Fanning
Francis J. Berman	Joseph M. Fanning
Christopher P. Conlin	Solomon Rudolph
Richard V. Driscoll	Alexander G. Smith

Economics

James E. Harris

Hygiene

Dr. Alexander Apisdorf, *Chairman*

Arthur S. Peck Frank Salz

Industrial Processes

Samuel F. Mersereau, *Chairman*

Edwin R. Gidner	Ronan M. McNamara
Alfred Heepe	Joseph E. Mulqueen
Walter R. Jones	William P. Nelson, Jr.
Max Kohn	Arthur M. Shrager
Macy Lanice	Clarence LeG. Sjogren
Marcus Mayer	Berthold Speier

Mathematics

Morris Cohen, *Chairman*

Frank C. Bowles	Isidore Glaubiger
Mabel E. Browne	Harold D. Goldberg
James C. Callahan	Harry Goldstein
Samuel Cohen	Samuel C. Greene
Helen W. Cooley	Ida M. Hendrickson
Edmund P. Davis	Solomon Kimmel
Harry A. Eigen	Peter A. Lanese

Mrs. Rae I. Lapedos
Joseph Lipschitz
Robert J. MacColl
Harry Matison
Emma A. Moehling
Louis S. Odell

Henry J. Queen
Jacob Rush
William H. Schwartz
Joseph Spiegel
Morris Turetsky
Henry I. Wood

Applied Mathematics

Ernest H. Koch, Jr., *Chairman*

Harry Goldstein	Joseph Lipschitz
Edward J. A. Kratt	Myer Zaslaw

Modern Languages

Paul Radenhausen, *Chairman*

Abraham A. Berman	Albert L. Hebert
M. Paula Dale	Emanuel Lilling
	Emile Tron

SCIENCE

Chemistry

Jacob A. Mattuck, *Chairman*

Marcus R. Durlach, Jr.	Jacob J. Marcus
B. Whitney Ferguson	Victor M. Reusch
Saul S. Hauben	Richard S. Siegel
Stanley C. Hudders	Louis Serota
David Krancer	Joseph Singer
	Earl M. Washburn

Applied Physics

John H. Schaumloeffel, *Chairman*

Nathan Borowsky	Frank J. O'Connor
George Gebel	George F. Orthey
Charles C. Germann	Torquato Pisani
Louis P. Knudsen	Frank E. Stewart
Horace J. McNeil	Simon A. Weissman

Shop Assistant

Mads S. Andersen

Applied Electricity

William Pabst, *Chairman*

Angelo Amatulli	Herman Haverkamp
Dominic M. Chiarello	Alexander N. Hesse
Louis H. Feldman	John F. Krauss
John C. Fretz	John Mangione
Charles C. Germann	Sidney R. Parker

Electrical Shop Assistant

Julius F. Baker

SHOPS

Metal Shops

Bertram A. Lenfest, *Chairman*

Aeronautical Construction

Frank W. LaVista

Forge

John J. Foley	Clifford B. Griswold
	John A. Trosello

Foundry

Edwin W. Doe	John F. Gillen
	James C. Whiston

Machine Shop Practice

Jean G. Auperin	Peter Lachina
Herman E. Blendeman	John W. Lawson
Thomas Boyd	Wesley E. McArdell
Andrew P. Christianson	Lawrence J. McSherry
John J. Fagan	Philip Martin
Richard Grundmann	Oscar F. Nilson
Frederick H. Hammer	John H. Stelljes
David S. Hiller	Wesley E. Truesdell
Rudolph E. Kummer	James C. Wagner

Sheet Metal

Vincent A. Hochberg	Edward C. Lauber
Kurt Kerstein	Albert V. Shary

Structural Shop

Harold R. Gramling

Shop Assistants

Armand Bassi	Theodore Ericson
	William Henn

Wood Shops

George C. Wigle, *Chairman*

Joinery

Benjamin Baumritter	Alexander Kirkwood
M. Morton Birn	Max Leider
Nathaniel Israel	Ezra Putnoi
	Richard O. Reger

Pattern Making

Harry W. Austin	John R. Fink
Tom F. Berrill	Joseph H. Giancarlo
Jean J. Brown	Charles W. Ledley
William H. Cauvet	Louis J. Merwin
Victor W. Charman	Robert J. Petermann
Harry A. Cohan	Hugh T. Striffler
	Henry L. Timpfe

Shop Assistants

David Cameron	Harry Stone
---------------	-------------

COURSE OF STUDY

FIRST TWO YEARS

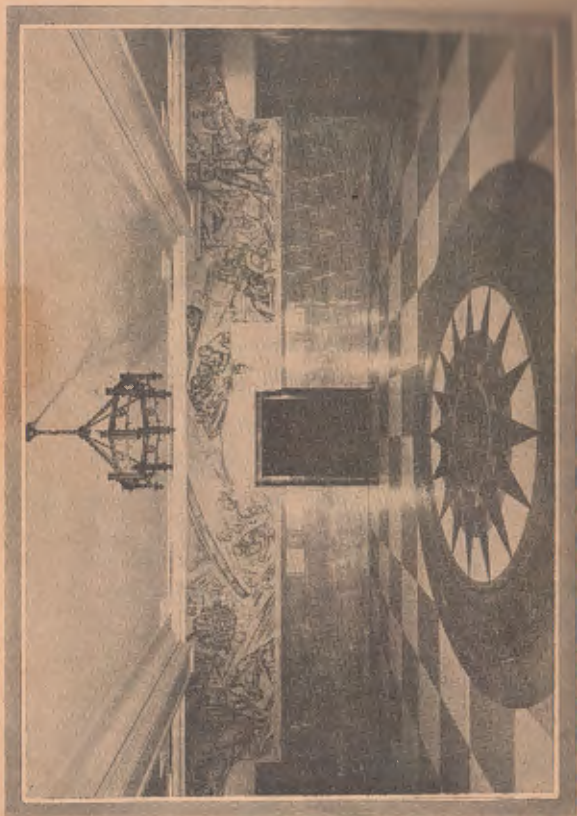
Courses at Brooklyn Technical High School are designed to meet the needs of two groups of students: (1) those who plan to attend engineering colleges immediately after graduation; and (2) those who plan to seek employment after graduation. For the first group we offer the Technical College Preparatory Course. For the second group there are the following courses: Architectural and Building Construction, Art, Chemical, Electrical, Mechanical, and Structural. Under certain conditions, and usually with the addition of Intermediate Algebra, graduates of the courses in group 2 may also obtain admission to college.

All courses are identical for the first two years, with the exception that certain students who plan to take three years of a foreign language in the Technical College Preparatory Course may begin this in Grade III.

FIRST AND SECOND GRADES—English (5); Mathematics—Pure and Applied (5); Industrial Processes (5); Shop—Pattern Making and Foundry Practice (10); Technical Drawing—Mechanical (4), Freehand (2); Civics (2 periods in Grade I; 3 periods in Grade II); Health Education (2).

THIRD GRADE—English (5); Mathematics—Pure and Applied (5); *Chemistry or Foreign Language (5); Shop—Forging, Welding and Sheet Metal Work (10); Technical Drawing—Mechanical (4), Freehand (2); Hygiene (2); Health Education (2).

FOURTH GRADE—English (5); Mathematics—Plane Geometry (5); *Chemistry or Foreign Language (5); Elementary Machine Shop (10); Technical Drawing—Mechanical (4), Freehand (2); Hygiene (2); Health Education (2).



FOYER

THIRD AND FOURTH YEARS

Group I—Technical College Preparatory Course

FIFTH GRADE—English (5); Mathematics—Plane Geometry completed (5); Foreign Language (5); Physics (5); Mechanical Drawing (2); Shop (6); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Physics (5); Foreign Language (5); Mechanical Drawing (2); Shop (6); Health Education (2).

SEVENTH GRADE—English (5); Mathematics—Solid Geometry (5); Foreign Language (5); American History (5); Mechanical Drawing (2); Shop (6); Health Education (2).

EIGHTH GRADE—English (5); Mathematics—Intermediate and Advanced Algebra (5); Foreign Language (5); American History (5); Mechanical Drawing (2); Shop (6); Health Education (2).

* The foreign language will be taken in the Second Year by boys of the Technical College Preparatory group who need three years of the language for college. These boys must add Chemistry to their fourth year requirement.

Note—Numbers enclosed in parentheses indicate periods per week.

Group II—Including Special Technical Electives

Subdivision One—Architectural Drawing Essentials of Building Construction

This subdivision aims to meet the needs of two types of students—those who have talent as designers and will start as assistants to architects after graduation; and those who will prefer to follow the more active life of the building and contracting business. After graduation, these latter pupils will start in some minor position in building construction, eventually becoming superintendents and contractors.

FIFTH GRADE—English (5); Mathematics—Plane Geometry completed (5); Physics (5); Applied Mechanics and Strength of Materials (5); Architectural Drawing and Design (5); Building Construction Shop, Details of Frame House (10); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Physics (5); Applied Mechanics and Strength of Materials (5); Architectural Drawing and Design (4); Building Construction Shop, Details of Frame House (10); Health Education (2).

SEVENTH GRADE—English (5); American History (5); Architectural Drawing and Design (20); Building Construction Shop, Steel and Concrete (10); Health Education (2).

EIGHTH GRADE—English (5); American History (5); Economics (5); Architectural Drawing and Design (20); Health Education (2).

Subdivision Two—Chemical (Industrial)

The studies in the chemical subdivision are intended to give such practical and theoretical training as will enable young men to find chemical employment with manufacturers, either in the laboratory or in the plant.

The need of young men with this training is rapidly growing in all branches of industry. The course aims to familiarize the student with modern methods of chemical work. It includes the essential laboratory practice and technical matter necessary to further this aim.

FIFTH GRADE—English (5); Mathematics—Plane Geometry completed (5); Chemistry—general (10); Physics (5); Machine Shop (6); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Chemistry—Qualitative Analysis (10); Physics (5); Machine Shop (6); Health Education (2).

SEVENTH GRADE—English (5); Quantitative Analysis (15); American History (5); Power Laboratory—Steam, Gas, Air and Water (5); Health Education (2).

EIGHTH GRADE—English (5); Chemistry—Industrial (15); American History (5); Economics (5); Power Generation and Distribution (5); Health Education (2).



ELECTRICAL LABORATORY

Subdivision Three—Electrical

This subdivision aims to give a knowledge of applied electricity that may be used by its graduates in several lines of industrial employment. They will be able to operate switch boards, and to tend dynamos, to do cable and wire testing, to install and test meters. They may become assistants to electrical engineers and contractors, or serve in a useful capacity in generating and distributing plants. They may also be employed by manufacturers who make considerable use of electrical power.

FIFTH GRADE—English (5); Mathematics—Plane Geometry completed (5); Physics and Physical Measurements (10); Electrical Drawing (4); Machine Shop (6); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Physics and Physical Measurements (10); Electrical Drawing (4); Machine Shop (6); Health Education (2).

SEVENTH GRADE—English (5); American History (5); Power Laboratory—Steam, Gas, Air and Water (5); Power Generation and Distribution and Generators and Motors (10); Electrical Construction Shop (6); Health Education (2).

EIGHTH GRADE—English (5); American History (5); Economics (5); Theory of Alternating Currents and Commercial Testing (10); Electrical Construction Shop (6); Health Education (2).

Subdivision Four—Mechanical

This course includes a careful study of industrial practice supplemented by visits to local industries.

The graduates of this course are expected to rise through minor executive positions to places of considerable responsibility in modern industrial plants.

FIFTH GRADE—English (5); Mathematics—Plane Geometry completed (5); Physics (5); Applied Mechanics and Strength of Materials (5); Machine Drawing and Design (4); Advanced Pattern Making (6); Machine Shop (10); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Physics (5); Applied Mechanics and Strength of Materials (5); Machine Drawing and Design (4); Advanced Pattern Making (6); Machine Shop (10); Health Education (2).

SEVENTH GRADE—English (5); American History (5); Power Laboratory—Steam, Gas, Air and Water (5); Heat Treatment of Metals, and Shop Management (5); Machine Drawing and Design (4); Machine Shop (10); Health Education (2).

EIGHTH GRADE—English (5); American History (5); Economics (5); Power Generation and Distribution (5); Machine Drawing and Design (4); Machine Shop (10); Health Education (2).

Subdivision Five—Structural

The aim of the structural subdivision is to prepare boys to become assistants to civil engineers and contractors. Surveying and structural design are its most important subjects.

Students have secured satisfactory employment with the U. S. Coast and Geodetic Survey, Public Service Commission, and private construction companies.

FIFTH GRADE—English (5); Mathematics (5); Physics (5); Applied Mechanics and Strength of Materials (5); Structural Steel Construction (10); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Physics (5); Applied Mechanics and Strength of Materials (5); Surveying Theory and Practice (10); Health Education (2).

SEVENTH GRADE—English (5); American History (5); Structural Design and Graphic Statics (10); Surveying Theory and Practice (10); Health Education (2).

EIGHTH GRADE—English (5); American History (5); Economics (5); Structural Design and Graphic Statics (10); Structural Steel Construction (6); Health Education (2).

Subdivision Six—Art

The aim of the art subdivision is to prepare boys for direct entrance into one of the branches of commercial art or industrial art. Applicants for the course must have completed the first two years' work and must present evidence of aptitude for this work. Information may be had by communicating with Mr. Evans, Chairman of the Art Department.

FIFTH GRADE—English (5); Mathematics—Plane Geometry (5); Physics (5); Elementary Design (5); Drawing and Painting (10); Art Motivation (2); Art Elective* (10); Health Education (2).

SIXTH GRADE—English (5); Mathematics—Trigonometry (5); Physics (5); Elementary Design (color) (5); Drawing and Painting (10); Art Motivation (2); Art Elective* (10); Health Education (2).

SEVENTH GRADE—English (5); American History (5); Pictorial Composition (5); Advanced Design (5); Figure Drawing (10); Art Motivation (2); Art Elective* (10); Health Education (2).

EIGHTH GRADE—English (5); American History (5); Economics (5); Advanced Design (5); Figure Drawing (10); Art Motivation (2); Art Elective* (10); Health Education (2).

* A pupil may select one of the following Art Electives: Theatrical Design; Graphic Arts; Applied Design; Ornamental Sculpture; Commercial Illustration.

Requirements for Graduation

A diploma is granted:

1. When a boy has satisfactorily completed a definite course of study (all subjects), not when he has completed a certain number of points or units.

2. If the school record shows that his moral character is beyond reproach.

DEPARTMENT SYLLABI

FREEHAND DRAWING

Freehand drawing is offered in the first and second high school years as a definite training of the powers of observation and as a graphic language which may serve as an adjunct in technical explanation.

Aesthetic development is not attempted as a cultural training other than what is derived from the appreciation of nice technique and such elements of spacing and arrangement as enter into representative drawing.

To this end the work begins by embracing the elementary principles of perspective. In the first and second grades much emphasis is laid on principles of construction, on the need of accuracy and precision in drawings and on the need of following instructions carefully.

Cylinders on their bases are taught, and parallel perspective in general is developed through the medium of simple models, graphic explanations, and diagrams. In this connection different colors are used by the instructor for each step in the problem, so that the separate phases of the problem and the respective principles involved are emphasized. This tends to present the work in a manner which is easy to comprehend and remember.

After these simpler principles of construction have been mastered, the student is ready to pursue the third and fourth term work which entails the more difficult problem of involved machine parts, i.e., magnetos, carbureters, sewing machines, and generators. In the third grade, shading is presented and developed step by step through the various techniques used in the engineering fields for graphic representation. The fourth grade work is devoted to the study of various pencil and ink techniques.

MECHANICAL DRAWING, DRAFTING AND DESIGN

FIRST GRADE—Use of T square, triangle, scale. Elements of projection, taught by a graded series of simple objects, bench exercise, wood joints, straight line work only. Isometric drawing, detail and assembly working drawings. Lettering, freehand sketching.

SECOND GRADE—Use of instruments. Projection and isometric drawing as applied to machine shop ex-

ercises. Applications of geometrical constructions. Screw threads, bolts and nuts. Use of finish mark, radial dimensions, and sectional views. Freehand sketching, lettering.

THIRD GRADE—Principles of orthographic projection. Sheet metal drafting, including intersection of solids, development, and the true length of a line.

FOURTH GRADE—Elementary machine design (one-third term). Structural drafting (one-third term). Review of first three terms (one-third term).

FIFTH GRADE—Cams—the development of positive and non-positive acting cams. Motion diagrams. Gears—computations for and drafting of spur and bevel gears. Discussion of drafting room and shop practices.

SIXTH GRADE—Architectural drawing—floor plans, roof and cellar plans, cross-section and elevations. Architectural lettering and tracing.

SEVENTH GRADE—Structural drafting. Discussion of the uses of various structural shapes, the use of the handbook. Computations, design, and drafting involving floor beams, girders, reinforced concrete, and columns. Tracing.

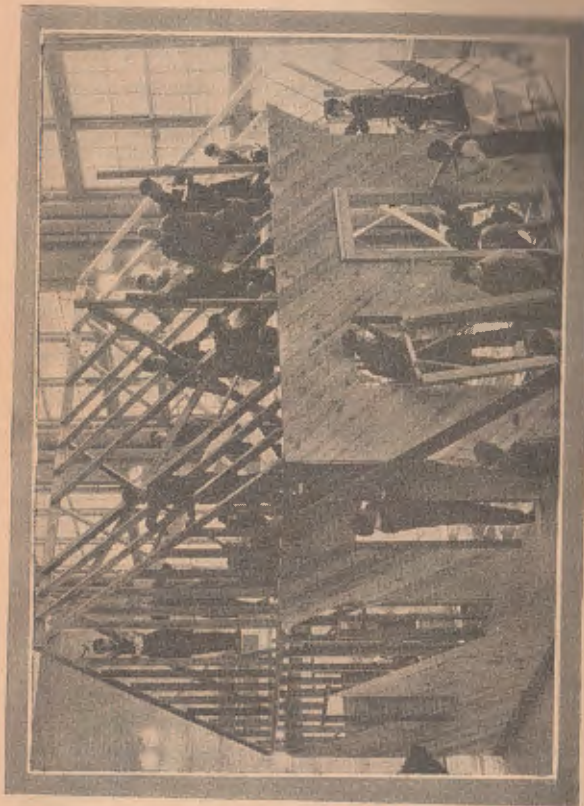
EIGHTH GRADE—Topographical drafting. Explanation of engineers' scale, topographical symbols, contour maps, profiles, cross-sections, computation of earthwork, plotting surveys, and tracings.

Note:—All students are required to take the work of the first four terms, at the conclusion of which they must take a comprehensive examination covering the work of the first two years.

For those who intend to prepare for technical occupation immediately after graduation, intensive courses in Architectural, Electrical, Machine, and Structural Drafting and Design are offered and outlined as follows:

ARCHITECTURAL DRAFTING AND DESIGN

Orders of Architecture; perspective; shades and shadows; rendering in pencil and in wash; details of construction; plumbing layouts; heating; estimating; materials of construction; design of a one-family frame dwelling; design of a public building in masonry construction; tracing.



ELECTRICAL DRAWING

Electrical drawing is given to students in the Electrical Course four periods per week, in Grades V and VI.

The subject deals with electrical machinery and the applications of electrical circuit theory to switchboards.

In Grade I, detail and assembly drawings of commutators, brush riggings, and shop projects are made and traced. Simple electrical and magnetic theories are developed and applied.

Correlation with the electrical shop is carried on through a study of D. C. armature winding applied to a $\frac{1}{4}$ H. P. motor. This motor is later wound and assembled in the electrical shop.

In Grade II, the electrical theory necessary to understand the operation of a simple power circuit is developed. This circuit is drawn, using standard electrical symbols, and applied to a switchboard. Front, rear, and side views of the switchboard are drawn, thus giving an opportunity to read and apply the circuit.

Emphasis is placed upon proper technic in sketching, drawing and tracing, reading of electrical drawings, and development of electrical knowledge.

MACHINE DRAWING AND DESIGN

The use of applied mechanics applied to Machine Design; fastenings; clutches and couplings; cams, gears, shafts; journals and bearings; drives, belts, pulleys, chain and rope assembly and working drawings based on the above; tracing.

STRUCTURAL DRAFTING AND DESIGN

The application of applied mechanics to the design of a steel structure. Design and shop drawings; floor systems, floor slabs, beams, girders, spandrels; columns (concentric loading only); footings; foundations; stairs; trusses; graphic statics; a complete design and shop details for a small steel structure are required; tracing:

ENGLISH

FIRST GRADE—Literature: Stevenson's *Treasure Island*, London's *The Call of the Wild*, Coleridge's *Rime of the Ancient Mariner*; home reading—three books, one of which may be Kipling's *Captains Courageous*.

Composition: narration, simple adventures, letters. Capitalization and simple principles of punctuation: period, interrogation point, exclamation point, comma, apostrophe, quotation marks.

Grammar: structure of the sentence; relation of essential parts (subject, predicate, complement, and modifiers); recognition and use of appositives and prepositional phrases; inflection and use of nouns, pronouns, adjectives, and adverbs. Ward's *Sentence and Theme*, Lessons 1-17, 23, 24; pages 361, 362, 331-337, 373-380.

Oral English: reading, simple talks.

SECOND GRADE—Literature: Stevenson's *Kidnapped*, Scott's *Ivanhoe*, Shakespeare's *Midsummer Night's Dream* or Drinkwater's *Abraham Lincoln*; home reading, three books.

Composition: narration from experience with special emphasis on the story that depends upon description; letters, business and social. Punctuation of the compound sentence; colon.

Grammar: structure of the sentence with particular emphasis on the simple and the compound sentence varied by the use of verbals; conjugation of *be* and *have* and active and passive voices of regular and irregular verbs; sequence of tenses. Ward's *Sentence and Theme*: Lessons 18-22, 25-29, 46, 47, 49, 50; pp. 312-316. Canby and Opdycke's *Grammar and Punctuation*, Section on verbs.

Oral English—reading, simple talks.

THIRD GRADE—Literature: Poe's *Tales*, *One Hundred Narrative Poems*, ed. by Teter, Homer's *Odyssey* (Bates' translation); home reading, three books.

Composition: letters, business and social, simple exposition of concrete subjects from the pupil's own experience. Punctuation: semicolon in compound sentences and in a series; comma with adverbial and non-restrictive clauses. Ward's *Sentence and Theme*, Lessons 57-63.

Grammar: The complex sentence: relative, noun, and

adverb clauses. Ward's *Sentence and Theme*, Lessons 30-45, 48, 91-93, 95, 96, 98-101; pages 306-311, 316-320.

Oral English: Standards of correct speech in enunciation and pronunciation; oral reading of prose and verse. Ward's *Sentence and Theme*, Lessons 65, 66, 89.

FOURTH GRADE—Literature: Dickens' *A Tale of Two Cities*, Shakespeare's *The Merchant of Venice*, Writings of Theodore Roosevelt or *Modern Biographies*; home reading, three books, one of which may be Wister's *Virginian* or Gras' *Reds of the Midi* or Dickens' *David Copperfield*.

Composition: business letters of all kinds; continued work in practical exposition; methods of paragraph development; outlining. Review of punctuation taught in Grades I-III. Canby and Opdycke's *Mechanics of Composition*, Sec. 16, 17, 21, 22, 23, 24, 25, 39; Chapter VI.

Technic: Structure of the sentence—simple, complex, and compound; the clear sentence; the emphatic sentence. Canby and Opdycke's *Mechanics of Composition*, Sections 18, 19, 20, 35, 45.

Oral English: reading, talks from previously prepared outlines.

FIFTH GRADE—Literature: Shakespeare's *Julius Caesar*, Untermeyer's *Yesterday and Today* or Brown-ling's *Shorter Poems*, Darrow's *Masters of Science and Invention*; home reading, three books, one of which may be De Kruif's *Microbe Hunters*.

Composition: letters expressing opinions or views based on first-hand knowledge; exposition, 300 word theme necessitating research in preparation for term talk. Punctuation review—*Century Handbook*, rules 90-99.

Technic: structure of the sentence—simple, complex, and compound; correction of faulty sentences; review of grammatical errors with emphasis on the clear statement of reasons; diction. *Century Handbook of Writing*, Sections 1-29, 50-59, and 60-69.

Oral English: oral interpretation of prose and verse; oral exposition; well-planned term talk in connection with study of *Masters of Science and Invention*.

SIXTH GRADE—Literature: *Essays Old and New*, ed. by Chamberlain, Tennyson's *Idylls of the King*

("Coming of Arthur," "Gareth and Lynette," "Lancelot and Elaine," and "Passing of Arthur"), Shakespeare's *Henry V*; home reading, three books, one of which must be Tarkington's *Turmoil* or Howells' *Rise of Sam Lapham* or Lewis's *Arrowsmith*.

Composition: review of formal and informal exposition; special emphasis on the writing of well-developed paragraphs and the planned composition. *French writing* (Bessey's *Reading through Prices*). Punctuation review.

Technic: structure of the sentence—simple, complex, and compound. *Century Handbook of Writing* (new edition), Sections 30-49, 60-69, and other sections as needed.

Oral English: reading, dramatization, talks from a previously prepared outline.

SEVENTH GRADE—American Literature: Long's *History of American Literature* and Hatfield's *Spirit of America in Literature*; home reading, three books, all of which must be by American writers and one of which may be Mitchell's *Hugh Wynne*, or Rölvaag's *Giants in the Earth*, or Clemens' *A Connecticut Yankee in King Arthur's Court*, or Westcott's *David Harum*.

Composition: argument; methods of proof; sales talks; defense of an opinion.

Technic: punctuation; correction of faulty sentences. *Collegiate Century Handbook of Writing*, rules 23, 24, 81, 100, 101, 120, 125, 127, 128.

Oral English: talks from previously prepared outlines; panel discussions.

EIGHTH GRADE—Literature: Carlyle's *Essay on Burns*, Shakespeare's *Macbeth*, selected poems of Wordsworth, Shelley, Keats, and Byron in the *Golden Treasury*, ed. by Palgrave, Untermeyer's *Modern British and American Poetry*; home reading, three books, one of which may be Garland's *Son of the Middle Border*. Review of types of literature.

Composition—review of the principles of unity, coherence, and emphasis in the sentence, paragraph, and composition. Term essay.

Technic—punctuation, correction of faulty sentences,

manuscript correction. *Collegiate Century Handbook*, Sections 102, 103, 104, 105, 106, 107, 108, 130-139.

Eighth Grade students should be able to write clear idiomatic, forceful English. They should be able to compose good paragraphs and well-planned compositions. The term essay is written on a subject in which the student is personally interested.

ORAL ENGLISH

The efficient engineer must do more than work with his hands; he must be able to give clear, definite directions to his men and to present his problems in talks to various people. Good speech is of vital importance. Each grade presents Oral English in drill work, reading, and oral composition. Grades III and V specialize in speech work.

HEALTH EDUCATION AND HYGIENE

Two periods a week in the gymnasium and two periods for Hygiene in the Third and Fourth Grades; a term of Health Education for each term in the school is required.

Attendance, posture, and drill work which includes corrective, educational, hygienic exercises and recreational work count about two-thirds in any marking period.

Games—Ability to take a boy's part as one of a group in an assigned game will be counted.

PERSONAL HYGIENE—Lack of attention to hair, face, mouth, ears, neck, and hands, and general appearance of clothing will receive demerit marks.

APPARATUS WORK—First year—No apparatus given in the first year.

Second year—Horse, parallel bars, horizontal bars, standing broad jump and chinning.

Third year—Parallel bars, horizontal bars, horse, horizontal ladder, vaulting bar, high jump, and chinning.

Fourth year—Shot put, horizontal bar, parallel bars, horse and chinning.

INDUSTRIAL PROCESSES

Textbook—*Materials of Industry*, Macmillan

The course in Industrial Processes is unique in both its subject matter and the manner in which it is given. It includes the study of the production of the general basic materials of industry. The selection and arrangement of the materials have their basis in the requirements of a course developed in the Brooklyn Technical High School over a period of several years. In arranging the course, two special aims have been kept in mind (1) to select and group together topics that present degrees of difficulty commensurate with the development of the student mind at the time they are being studied, (2) to make it convenient to study each subject at a time when it will best correlate with the work of other departments.

The main object of the course is to give the pupils a general background for their work in physics, chemistry, and mechanics as applied to engineering, and also to afford a logical working knowledge of the subject for those students who expect to work to responsible positions in the industries without taking advanced engineering courses.

Emphasis is laid on observation and doing as special aids to clear and logical thinking. Motion pictures, slides, charts, maps, specimens, and other illustrative materials are used in teaching. A series of models is also being constructed for classroom work. These include a saw-mill, wood distillation plant, turpentine still, blast furnace, blast furnace stove, cupola furnace, Bessemer converter, open-hearth furnace, puddling furnace, cement kiln, carborundum furnace, and others. As far as possible these models are constructed so their operation can be demonstrated.

At stated intervals during the course, classroom demonstrations are given in the manufacture of coke, turpentine, rosin, charcoal, pyroligneous acid, copper refining, and wood preservation.

The lecture method of presentation is avoided. The pupils must take active part in discussions guided by the teachers. Every pupil must make a comprehensive notebook which often requires research work in the libraries and other sources.

The time given to the subject is five periods per week for the first year, and the grades are divided as follows:

FIRST GRADE—Forests: timber trees, wood structure, logging, transportation, sawing, mill refuse, seasoning lumber, veneer, paper, wood preservation, tanbark, wood distillation, cooperage, turpentine, rosin, forestry; glue; rubber; petroleum, asbestos; asphalt; bricks; tiles; terra cotta; building stones; lime; cement; concrete; bakelite.

SECOND GRADE—Coal; coke; iron and steel, ores, mining, transportation, blast furnace operation, Bessemer and open-hearth steels, rolling mills, cementation steel, crucible steel, cast steel, steel alloys, wrought iron, electric furnace steel, electric smelting furnace; copper, non-ferrous alloys; aluminum; zinc; glass; abrasives, natural and artificial; paints and varnishes; white coal.

MATHEMATICS

Every pupil registered in the school must take Mathematics for at least three years. In the Technical College Preparatory Course, four years of mathematics are required. In the Unit Technical Course, three years of mathematics are required.

FIRST GRADE—Pure and Applied Mathematics I. Required for all students. Keal and Phelps *Secondary Mathematics*—first 78 pages, including the equation, evaluation, the equation as applied to supplementary and complimentary angles, algebraic additions, subtraction, multiplication (also factoring), and division, fractional equations, simultaneous linear equations, algebraic solution, graphs of statics, lever problems, ordinary algebraic problems, and practical application of standard formulas involving arithmetic computation. Use of the slide rule, (multiplication and division) and projector demonstration of lever, wheel and axle.

SECOND GRADE—Pure and Applied Mathematics II. Required for all pupils. Keal and Phelps *Secondary Mathematics*, pages 79-161, including ratio, proportion and variation, pulleys, gears, R. P. M., rim-

speeds, cutting speeds, squares and square roots, formulas, factoring, quadratic equations, literal equations, simultaneous linear equations, algebraic and graphic solutions, and solutions of problems in cooperation with work in the shops involving arithmetic and algebraic computation. Unit of Plane Geometry, constructions coordinating with Mechanical Drawing. Unit of Solid Geometry, coordinating with Metal Course. Use of slide rule (Proportion, square and square roots). Demonstration of train of gears, and step cone pulleys.

THIRD GRADE—Pure and Applied Mathematics. III. Required for all pupils. Schultze and Breckenridge *Elementary and Intermediate Algebra*, pages 180-316, completing the State requirements to Elementary Algebra; plus several topics in Intermediate Algebra such as Algebraic and graphic solution of simultaneous quadratic equations, a complete course in logarithmic computation, solution of right triangle, use of slide rule (tangents, sines, logs). Demonstration of hypsometer and transit. Conic section model.

FOURTH GRADE—Plane Geometry. Required for all pupils. Schultze-Sevenoak-Schuyler's *Plane Geometry* and MacCormack's *Plane Geometry*. Technical Applications. Books 1 and 2. Use of slide rule. Demonstration of 30, 60, 45 degree triangle, T square, angle mirror, sextant, level.

FIFTH GRADE—Plane Geometry. State Examination. Required for all pupils. Complete Books 3, 4, and 5 of Schultze-Sevenoak-Schuyler's *Plane Geometry* and MacCormack's *Plane Geometry*. Technical applications. Use of slide rule. Demonstration of hypsometer, transit, level, sextant, planimeter, alidade and pantograph.

SIXTH GRADE—Trigonometry. Required for all pupils in the Technical College Preparatory Course. State Examination. Granville, Smith and Mikesh *Trigonometry*. Cover topics of State syllabus and emphasize solution of triangles with practical applications. Use of slide rule. (Check by law of sines.) Demonstration of hypsometer, transit, level, sextant, alidade, planimeter.

(For Syllabus of Technical Trigonometry see Applied Mathematics).

SEVENTH GRADE—Solid Geometry. State Examination. Required for all pupils in the Technical College Preparatory Course. Welch and Knickenberger *Solid Geometry*. Emphasis upon technical applications. Use of slide rule. Demonstration of Planimeter.

EIGHTH GRADE—Intermediate and Advanced Algebra. Required for all pupils in the Technical College Preparatory Course. Schultze's *Advanced Algebra*, Betz's *Algebra for Today*, Technical course, Edgerton and Carpenter's *Advanced Algebra*. Technical applications. Use of the slide rule. (Square root.) Intermediate Algebra completed for State Examination. Advanced Algebra is also given to a select group. This group covers both Intermediate and Advanced Algebra in one term leading to State Examination in Advanced Algebra.

APPLIED MATHEMATICS

SIXTH GRADE—Wentworth and Smith *Plane Trigonometry* and *Supplementary Applied Problems in Trigonometry*.

This course is known as Technical Trigonometry and is required of all pupils except those taking the College Preparatory Course. It is characterized by the inclusion of a great variety of applied problems which correlate with shop, machine design, electricity, surveying, mechanical movements, marine and aerial navigation, and other departmental applications. Less emphasis is given to goniometry than in the Regents course. A special project is assigned to each pupil for original study and individual investigation. At the end of each third, an examination is given on the minimum essentials in trigonometry covered during that third of the term. A final examination of three hours is given to all pupils at the end of the term.

MODERN LANGUAGES

FRENCH I.

Reading—Colette and Ses Frères (Pages 1-40) through I remember. (*Intensively*)—Remainder of book extensively.

Grammar—Greenberg's *Elements of French* (Lessons 1-25—omitting 5, 9, 12, 17, 21).

Informational Material—City Syllabus.

Supplementary Reading—1 book or 2 movies.

Memory Work—La Santé and series or songs—*Les verbes*, Greenberg No. 1, 4, 6, 8, 12.

Idioms—age, health, time, birthdays, dates.

Dictation and Oral Comprehension—every week.

FRENCH II.

Reading—Pas à pas *intensively*—stories No. 2, 4, 6, 7, 8, 9, 18, 22, 23 and 24 and a few stories from *Petites Contes de France* (Marie Antoinette, Boum-Boum, Napoleon, Jeanne D'Arc). La Russe de Martin—Bayard—L'Apprenti du Barbichou.

Grammar—Greenberg's *Complete French Course*, Abridged Edition. Review of the work of the first term. Lessons 18-37.

Informational Material—City Syllabus.

Supplementary Reading—1 book or 2 movies.

Memory Work—La Marseillaise and Je veux écrire une lettre. Proverbs, Greenberg No. 15, 20, 22, 25, 27.

Idioms—avoir idioms, faire temps.

Dictation and Comprehension—one day every week.

FRENCH III.

Reading—*Histoire de France*, first 150 pages.

Grammar—Greenberg's *Complete French* (complete course). Pages 137-197.

Supplementary Reading—one book, special list.

Memory Work—La Cigale et la Fourmi.

Informational Material—City Syllabus.

Dictation and Comprehension—Every week, from texts or based on definite points studied.

FRENCH IV.

Grammar—*Complete French Course*, page 197—lessons 56 through 69.

Reading—Reader *La Belle France* or Hicks and Ford, and 4 experiments from *Leçons de Choses*. List of 25 elements in French.

Memory Work—*Le Corbeau et le Renard*, or a poem.

Dictations and aural comprehension based on Regents' questions, (anecdotes, etc.) one day every week.

FRENCH V.

Students in the Third Year of a foreign language as a rule are students who will go to one of the engineering colleges. The scientific aspect of the foreign language is to be stressed.

Reading—*Leçons de Choses*—Chapters 7, 11, 12, 14, 18, 19, 20, 24, 29, 43. *Le petite Chose*—20 pages *intensively*, the remainder *extensively*. (Another book may be substituted.)

Supplementary Reading—One of the following books in the French language:

Sans Famille—Chicago University Press

La France Qui travaille

La Poudre Aux Yeux

Le Voyage de Monsieur Perrichon

Grammar—Schwartz *French Grammar Review*—Chap. 1-17.

Vocabulary—State List—389 words—*abaisser* through *judgment*.

Dictation and Comprehension—each Monday.

Idioms—State list—1-17 aux yeux bleus through *faire*, la sourde oreille.

Composition—Adaptation from model, free composition, and adaptation from series at least one a week. Topics—Seasonable: Paques; Le Printemps; L'Été; L'automne.

Memory Work—At least twenty lines, choice at the discretion of the teacher.

Cultural Material—Reports and lectures; City Syllabus.

FRENCH VI.

Aim as in Term V

Reading—William's *Scientific French Reader*—Selections from a number of chapters. Reading at least once a week on this topic.

Contes Divers—20 pages intensively, including *Cheval* and *Sans ne se peut pas*. Remainder of book extensively. Supplementary—*Mme. Thérèse*.

Grammar—Schwartz and French *Grammar Review*—Chapters XVIII-XXXI. Amateau *French in Action*—Former State Examinations.

Vocabulary and Idioms—Complete lists started in Term V.

Memory Work—Twenty lines of selected prose.

Dictation and Comprehension—Every Monday.

Composition—work as in Term V but on following topics:

Holidays:

Les vacances, la famille, Les sports, ce que je fais dimanche, Une lettre d'invitation, a letter describing New York, mes amis, a short summary of the book read.

Cultural Material—City Syllabus.

GERMAN I.

Reading—Guerber—25 pages of intensive reading. Jacob Haus, *Die Drie Schläfer*. *Der Rollende Pfannkuchen*. *Der Pfeifer von Hameln*, etc

Grammar—Manfred's *Praktischer Anfang*. Lessons 1-5 completely. Lessons 6 and 7—omit perfect tense. Lesson 8 omit accusative with prepositions. Lessons 9, 10, 11 and 12 completely. Chapter 13—Take only "der" words.

Dictation and Comprehension—Every Monday—Short passage or brief questions.

Idioms—15 of the idioms found in Manfred in lessons indicated.

Memory Work—Series—*An die Tafel gehen*.

Einen Bleistift spitzen

Nach der Schule fahren

Poems:

O, Tannenbaum, Winter Term

Du bist wie eine Blume, Spring Term

Supplementary Reading—See Supplementary Reading List.

Informational Syllabus—City Syllabus.

GERMAN II.

Reading—Altes und Neues for intensive and extensive reading. Cover 25 pages for intensive reading—*Der Wettermacher*, *Fritz und der Wolf*, *der Rosenstrauch zu Hildesheim*, *Der Graf und Der Nagelschmied*. 25 pages for extensive reading.

Grammar—Review of the work of the first term. Accusative prepositions in lesson 8, the dative prepositions in lesson 10 and the genitive prepositions Lesson XII. Lessons 13, 14, 17, 18, 19 and 20.

Dictation and Comprehension—Every Monday—Short passage or brief questions.

Idioms—20 of the idioms found in Manfred's *Grammar*.

Memory—Series—*Einen Brief schreiben*—*Das Aufstehen*. Poems: *Ich hatte einen Kameraden*, *Die Lorelei*.

Supplementary Reading—See supplementary reading list.

Informational Syllabus—City Syllabus.

GERMAN III.

Reading—*Blutgen Peterle von Nurnberg*—read completely. Bagster Collins *First German Reader*—Pages 1-35.

Grammar—Manfred, *Ein Praktischer Anfang*—Lessons 15, 16, 17, 18. Complete Manfred omitting 24, 26, and 27. Eltzner and Radenhausen's *German Review Grammar* to be used for reference and drill.

Dictation and Comprehension—Every Monday—Short passage or brief questions. Teacher is urged to use simple technical material for dictation.

Idioms—Verb idioms—25 taken from Eltzner and Radenhausen, Chap. 9 and 10.

Memory Work—*Eine Reise machen*, *Ins Theater gehen*, Goethe's *Heidenröslein*.

Supplementary Reading—See Supplementary Reading List.

Informational Material—City Syllabus.

GERMAN IV.

Reading—Intensively—First 40 pages up to Emil der Baumeister in *Klein Heini*. Remainder to be read extensively. Kolschewitz *Scientific German Reader*.

Grammar—Eltzner and Radenhausen *Grammar Review*. Points stressed in City Syllabus. Lessons 9, 6, 11, 13. Stress relatives.

Memory Work—Einkaufe machen—Eine Landpartie veranstalten.

Dictation and Comprehension—According to Regents rules—each Monday.

Composition—Simple compositions and summaries.

Informational Material—City Syllabus.

Supplementary Reading—Special lists.

GERMAN V.

Reading—Wright's *Scientific Reader*—20 pages, selected—Selections from *Nachlese*.

Extensive Reading—Emil Und Die Detektive.

Grammar—City Syllabus—Radenhausen and Eltzner *German Review Grammar*.

Dictation and Comprehension—Every Monday—Short passages or brief questions—Chapter on Idioms—Radenhausen and Eltzner.

Memory Work—Songs or Selections, as indicated by teacher, about 25 lines.

Supplementary Reading—One book in German after conference with teacher.

Informational Material—City Syllabus.

GERMAN VI.

Reading—Raschen and Fairfield—Selections particularly on Aviation and Television—Lists of Scientific Terms as agreed by BTHS.

Grammar—Eltzner and Radenhausen—complete review in preparation for Regents examinations.

Dictation—Every Monday—Short passage or brief questions. Former Regents papers.

Idioms—Eltzner and Radenhausen—Also vocabulary.

Memory Work—Series and Songs.

Supplementary Reading—One book in German after conference with teacher.

Informational Material—City Syllabus.

CHEMISTRY

THIRD and FOURTH GRADES—Chemistry I and 2—Elementary, 3 recitations and 2 laboratory periods per week. Black and Conant—*Practical Chemistry*. Preparation, properties, and uses of the more important elements and compounds. Simple equations; problems in relative weights. Emphasis on chemistry in the industries and the home.

FIFTH GRADE—Chemistry 3, Advanced General Chemistry, 4 recitations and 6 laboratory periods per week. Advanced inorganic chemistry with emphasis on theoretical and physical chemistry. Approximately one-fourth of the term is devoted to organic chemistry.

SIXTH GRADE—Chemistry 4, Qualitative Analysis, 4 recitations and 6 laboratory periods per week. Baskevill and Curtman's *Qualitative Analysis*. Systematic analysis of the acids and bases. Analysis of alloys and salt mixtures.

SEVENTH GRADE—Chemistry 5, Quantitative Analysis, 5 recitations and 10 laboratory periods per week. Talbot's *College Textbook of Quantitative Analysis* is used as a basis. Fundamentals of quantitative analysis; use of the analytical balance; typical gravimetric methods involving precipitation, filtration and washing. Typical volumetric methods involving use of volumetric apparatus; preparation and standardization of normal solutions, including theory of indicators; reactions involving acidimetry, alkalimetry, oxidation and reduction. Analysis of commercial products. Problems.

EIGHTH GRADE—Chemistry 6, Industrial Chemistry, 5 recitations and 10 laboratory periods per week. Study of industrial chemistry processes. Preparation of several industrial products in the laboratory, including the necessary calculations. Students are urged to use the library, and a term paper is required. The assigned topics are written up by the student in the form of a permanent notebook. *Elements of Industrial Chemistry* by Allen Rogers is used as a textbook. Visits are made to chemical plants.



CHEMISTRY LABORATORY

REGENTS CHEMISTRY

SEVENTH and EIGHTH GRADES—Chemistry IR and 2R, Elementary Chemistry, 3 recitations and 2 laboratory periods per week. Brownlee and others *First Principles of Chemistry*. This course prepares students for the Regents examinations and follows the syllabus as published by the University of the State of New York. Preparation, properties and uses of the common elements and compounds; metallurgy of iron, aluminum and zinc; important industrial processes; equations; problems in relative weights and relative volumes; calculations of formulas.

PHYSICS

FIFTH GRADE—2 recitations, 1 demonstration, and 2 laboratory periods a week. Black and Davis—*Practical Physics*. Mechanics of solids, liquids, and gases; heat. Construction, operation, and use of various mechanical devices such as pumps, simple machines, gas and steam engines, heating systems. Emphasis on practical applications; problems.

SIXTH GRADE—2 recitations, 1 demonstration, and 2 laboratory periods a week. Black and Davis—*Practical Physics*. Magnetism, sound, light, electricity. Construction and operation of various electrical instruments—the motor, the dynamo. Emphasis on practical applications; problems.

SURVEYING

Surveying is prescribed for the Structural Group and is taken in the Sixth and Seventh Grades. The text is *Plane Surveying* by Tracy. This is an outdoor course and requires ten periods per week for one year.

During the first term the following surveys are performed: pacing, taping, leveling, contour, triangulation and profile.

In the second term the more advanced surveys are taken: city survey, topography, plane table, railroad and highway curves, farm and land subdivision.

The instruments in daily use are: tapes, plumb-bobs, hand levels, surveyors' compasses, leveling rods, stadia

rods, engineers' wye and dumpy levels, engineers' transits, plane tables, alidades, and planimeters.

STRENGTH OF MATERIALS

The course in Strength of Materials is given in the Fifth and Sixth terms, five periods per week. The text books used are Kottcamp and Harper's *Strength of Materials* and the *Carnegie Pocket Companion*.

The course is required for students in the Structural, Architectural, Mechanical, and Aeronautical courses. The fundamentals of engineering design and testing are studied and applied to the essential parts of structures. Some of the topics taken up are: beams, columns, riveted joints, shafts, foundations, roofs, floor systems, and simple structures. Tests and experiments are performed in the Materials Testing Laboratory.

POWER LABORATORY

This course of five periods per week in the Seventh Grade deals with fundamental principles and practices of steam and gas engines (prime movers) and associated auxiliary apparatus.

This subject is essential not only for mechanical students but also for chemistry students desirous of a broad background and interested in the significance and application of calorimetry and the analyses of fuels, feed-water, flue gas or exhaust, and refrigerants.

Some of the topics taken up are heat and power measurements, properties of steam, principles of combustion, indicator diagrams, elements and characteristics of steam boilers, engines and turbines, gas and Diesel engines, air compressors and refrigerating machines.

THE ELECTRICAL COURSE

This course is designed for the student who does not expect to attend a day college and who intends to earn his living in the electrical industry. Graduates of this course usually continue their engineering studies at night college, while gaining industrial experience and advancement by day.

FIFTH GRADE—Physics and Physical Measurements I. 6 recitations and 4 laboratory periods a week.

This course emphasizes the practical applications of the principles of Physics to the modern forms of power generation, and to the uses and conversion of energy. It seeks to explain our complex mechanical civilization in terms of simple principles of Physics. The text is *Practical Physics* by Black and Davis.

SIXTH GRADE—Physics and Physical Measurements II. 6 recitations and 4 laboratory periods a week. In this course the electrical principles of physics are applied to power generation, the distribution and use of electricity, the telegraph and telephone form of communication, to transportation and to the electro-chemical industries. One of the purposes of the course is to show the student the many branches of the electrical industry so as to help him to choose the field in which he wishes to work. The text is *Elementary Electricity and Magnetism* by Jackson and Black.

SEVENTH GRADE—Power Generation and Distribution, and Generators and Motors. 6 recitations and 4 laboratory periods a week. In this course an intensive study is made of the application of direct current principles to the operation, control and characteristics of D. C. motors and generators and associated auxiliary equipment. The text is *Elements of Electricity* by Timble.

SEVENTH GRADE—Electrical Construction Shop I. 6 periods a week. A soldering iron and a transformer are planned, built, tested, and used. Standard shop tests for the location of defects in motors are studied. The equipment of the electrical laboratories and shops is kept in repair.

SEVENTH GRADE—Illumination. 3 recitations and 2 laboratory periods per week. The student learns to prescribe a suitable type and level of lighting for a room. He then designs that system and predicts its performance. He next installs this system in the laboratory and checks his predictions with photo-electric, foot-candle meters. Close agreement between test results and design predictions are expected.

EIGHTH GRADE—Alternating Currents and Commercial Testing. 6 recitations and 4 laboratory periods a week. The principles of alternating currents are intensively applied to A. C. circuits, and to the operation,

control and characteristics of transformers, induction and synchronous motors, the series and repulsion motors, rotary converters, and arc rectifiers. The text is *Alternating Currents for Technical Students* by Bishop.

EIGHTH GRADE—Electrical Construction Shop 11. 6 periods a week. A $\frac{1}{4}$ h.p. motor is wound, assembled, and tested. Standard armature repairs are made involving the use of loop winders, coil spreaders, and tapping machines. This class also assists in the upkeep of the electrical laboratory and shop.

SOCIAL STUDIES

Civics

FIRST GRADE—Two recitations per week.

SECOND GRADE—Three recitations per week. Two recitations will be held during the regular school hours. The third recitation will be held in the auditorium one afternoon each week after school. No pupil can be excused from attendance at this after-school session.

Economics

EIGHTH GRADE—Five recitations per week. Textbook, Faubel's *Principles of Economics* (revised edition). In this course, economic terms are defined and explained; economic principles, explained and applied. Study of current economic problems.

American History and Civics

SEVENTH and EIGHTH GRADES—Five recitations per week. Textbook in History—Muzzey, *History of the American People*. Textbook in Government—Woodburn and Moran, *The Citizen and the Republic* or Magruder, *American Government*.

In addition, each student is urged to read at least five hundred pages from supplementary texts. A printed list of approved books is on file in the library and may be consulted at any time. Students who complete this reading to the satisfaction of their teachers may receive ten credits on the Regents Examination and are excused from answering one question in the examination.

METAL WORK DEPARTMENT

SECOND GRADE—**FOUNDRY PRACTICE**, ten periods per week for ten weeks. This is an elementary course designed to give the student a knowledge of the fundamental principles involved in the manufacture of gray iron, brass, bronze, and aluminum castings. The students are required to make molds from patterns of various types such as simple flat back, cope-d-out, and split, also those requiring green sand and dry sand cores. Many of the molds are poured with molten metal to make castings which are used in our machine shops.

SIXTH GRADE—**ADVANCED FOUNDRY GROUP** (MECHANICAL COURSE), ten periods per week for 20 weeks. These students are divided into units under a student foreman and assignments are rotated through the various departments of our completely equipped modern foundry. This practice affords them an opportunity to study the various methods used in the production of castings by their direct contact with the planning, molding, core-making, melting, cleaning, and shipping departments.

THIRD GRADE—**FORGE WORK AND ACETYLENE WELDING**, ten periods per week for nine weeks, and nine weeks in SHEET METAL work.

Forge Work and Acetylene Welding

This course covers the following: how to build and care for a coal forge fire; kind of coal used and why it is used; shop precautions; general forging, such as drawing, forming, bending, shouldering, upsetting, punching, and chamfering; welding of iron and steel; use of top and bottom tools; stock calculations and allowances for needs; proper use of anvil and tools; general knowledge of iron and steel; methods of determining iron and steel by the spark test, sound, hardening, and breaking methods; hardening, tempering, and annealing of steel. Shop talks and demonstrations are given on all exercises which are finished to dimensions shown by blackboard drawings. Notebooks are used for references and for drawings of all projects.

Oxy-acetylene welding of iron, steel, brass, cast iron, and metals in general use, and the use of the oxy-ace-



FOUNDRY

tylene cutting torch are taught in this course.

Note—Ornamental iron work and advanced steel work are given to the more advanced boys.

Sheet Metal

This course is planned to acquaint the student with the fundamentals of Sheet Metal Work, and to give him a limited amount of practice in the use of the various tools and machines used in the trade.

The course, organized according to the difficulties of learning, consists of a series of problems involving parallel line developments, radial line developments, and triangulation. These problems in turn lead up to the design and layout of a project in sheet metal, into which are incorporated the three styles of pattern development and many of the operations of the trade. Included in this work are: marking, cutting, punching, forming, riveting, seaming, soldering, etc.

In conjunction with the work mentioned above, information is introduced concerning various sheet metals and their properties, and other scientific and chemical information as applied to the trade.

FOURTH GRADE—Introduction to the engine lathe and bench lathe. Elementary directions as to operation of sensitive drill press, 20-inch drill press, power hack saw, shaper, speed lathe, and milling machine (hand miller). Talks on small tools. Notebooks.

In the following grades, one period per week is devoted to lectures, discussion, and recitations.

FIFTH GRADE—More advanced work on engine lathe and bench lathe. Secondary directions as to operation and the mechanism of lathes and the auxiliary tools found in the elementary shops.

SIXTH GRADE—Advanced work on engine lathes, plain and universal milling machines, surface and universal grinders; twist drill and cutter grinders, planer and shaper. Preparations of unit parts of completed machines and machine tools.

SEVENTH GRADE—Continuation of the Sixth Grade. Advanced work and the assembling of machines such as buffers, tool grinders, truing devices for wet grinders, sensitive drill presses and mechanisms.

Heat Treatment of Metals

The work in Heat Treatment of Metals is given in the Seventh Grade and is a part of the Mechanical Course. It ranks as a prepared subject and is carried on in a completely equipped metallurgical laboratory. Metals are inspected for flaws with the aid of the microscope using ultra-violet light and also with the aid of the powerful X-ray equipment located in this laboratory. The various hardness tests are carried out on the standard machines used for these tests and photomicrographs are made on the two photomicrographic cameras. Specimens are prepared for observation on the latest type of polishing machines. The Heat Treatment laboratory has provision for making trial heats in its induction furnace and temperatures up to above 4000° F. can be obtained readily. Associated with the laboratory is a completely equipped dark room where the several processes related to the production of a finished print or enlargement are carried on with standard commercial apparatus.

Shop Management

This work is of a supervisory nature where the student places himself in the position of an executive and directs the operations in the shop. Plant location, modern methods of production, shop layout, and personal control are stressed in this course. Each student is required to submit a layout of a modern plant on a given plot of ground, showing the related shops, types of buildings and the arrangement of about three hundred machines in the various departments of the machine shop. This subject is a prepared subject and is given three periods a week in the seventh term.

EIGHTH GRADE—Assembling of any machine tool from parts made in this grade and in the Sixth and Seventh Grades; production of such advanced pieces as spur gears and gear racks; bevel and spiral gears, worm and worm wheel; crank shafts and cams; discussion and use of accurate methods of production and testing.

It is to be noted that the most advanced work is undertaken by students in the last two years of the Mechanical Course for this course alone offers ten periods a week of machine shop practice throughout. Other options, such as structural, chemical, electrical

and technical school preparatory, give less time to machine shop practice, but there is special work given, appropriate to the course pursued.

Structural Shop

FIFTH GRADE—10 periods per week for 20 weeks.

EIGHTH GRADE—6 periods per week for 20 weeks. The course covers all the principal operations and practices used in the general structural shop.

Instruction is given in the conventional representation of rolled structural shapes; holes, shop and field bolts and rivets; preparation of work orders; cutting and shipping lists, shop details, paper and metal templates; care and use of hand tools, structural fabricating machinery, essentials of welding by electric arc; atomic hydrogen processes, shop-erection and match marking of structural members.

Practice in layout work: cutting, shearing, punching, drilling, reaming, grinding and bending; assembly: fitting, bolting, riveting and painting.

Notebooks are kept for reference purposes.

WOODWORK

The general aim of the wood shops is to acquaint the pupils with the common characteristics, properties, and uses of wood as a medium of construction; to train them in the fundamental principles of woodworking; to cultivate habits and traits of responsibility and accuracy, and to foster respect for fellow workers, conditions, and materials. More specifically, we aim

(1) To acquaint the pupils with the essentials of good woodworking tools and machines, and to train in their proper care and use.

(2) To show the relations of various forms of woodwork to other branches of shop work, and to industries as a whole.

(3) To teach the application of mathematics, mechanical and freehand drawing, and physics, to shop problems.

(4) To train in the meaning and use of technical terms.

FIRST GRADE—During the first eight weeks the students are taught the fundamental exercises and principles and the use of the common hand woodworking

tools through a series of woodworking exercises. After this preliminary training the balance of the term (12 weeks) is devoted to elementary pattern making, in which the simpler types of construction used by the pattern maker are followed.

SECOND GRADE—Pattern making, 10 periods per week, 12 weeks. The work in pattern making includes the construction of ordinary wood patterns, involving shrinkage, draft, finish, fillets, core prints, core boxes, and split patterns. More difficult patterns are made by advanced pupils.

There are discussions of the theory of special phases of the work, such as stave work, built up work, sweeps, skeleton patterns, master patterns and metal pattern work, modern patterns, shop practice, shop management, and safety laws.

Advanced Pattern Making

Six periods per week, 2 terms. Advanced pattern making is offered to students of the Mechanical Group in the fifth and sixth terms.

Building Construction

Building construction, 10 periods per week, 3 terms. The course in building construction is required in the Fifth, Sixth, and Seventh terms of the Architectural and Building Construction Group. It is closely allied with the architectural drawing given in these terms.

FIFTH TERM—In the fifth term details of frame house construction are emphasized, together with the simpler types of interior and exterior finishes, including door and window frames and simple cornices. Emphasis is laid on the selection of proper lumber and other materials, and on simple estimating of quantities.

SIXTH TERM—In the sixth term, elementary framing is begun and a full size model of typical balloon type is constructed in the shops. Consideration of construction is given as applied to bills of materials, roof, framing, and the like.

In the **SEVENTH TERM** the more advanced type of interior and exterior finish (including stair building and special work on doors and windows) and, in addition, work in brick, concrete, stone, hollow tile and steel, and their uses in building construction, are covered.

GENERAL INFORMATION

TECHNICALITIES

Passes

Passes to admit students to the building before 8:40 to do work in connection with some school activity, must be signed by the teacher in charge of the activity and countersigned by the Administrative Assistant. Sick passes may be secured from the group advisers.

Fire Drills

The signal for a fire drill is three strikes of the gong, repeated three times. In an emergency this signal may be given on the class room bells.

Students form in double lines and are led to the street by their teachers. Pupils must keep in line, must walk—not run, and must refrain from talking.

Absence

1. A satisfactory excuse, properly dated and signed, must be presented to the prefect the day the pupil returns. This rule includes all religious holidays. If the absence is for two or more consecutive days, the dates should be stated in the body of the letter.

2. Pupils who fail to do this must report to the attendance office BW2 to secure a pass before attending classes.

3. Irregular attendance constitutes a serious interference with school work. Parents of pupils who are irregular in attendance will be asked to call at the school to confer with us on the matter.

4. Students are reported on Form 15 after the third absence, whether consecutive or intermittent. No pupil may return to class until part two of Form 15 has been signed by the teacher in charge of attendance.

5. Absence from 10% of the recitations in a subject raises the passing mark in the subject to 70%. Absence from 20% of the recitations bars the student from final examinations, unless he receives special permission to take the final examinations.

Pupils are urged to keep absences to the lowest possible number.

Lateness

1. Every pupil who is not in his room at the sound of the late bell at 8:45 is late.
 2. Every late pupil must report to room BW2 and secure a late pass before going to any room or class.
 3. The late pass, properly signed, **MUST** be returned to the prefect at the close of the day.
- Note*—Failure to comply with this regulation will be regarded as a serious matter.

C. A. Slips

Students are reported on Consecutive Absence Slips after an absence of three consecutive days.

Where the absence is due to illness, quarantine or other legitimate cause, the probable date of return is forwarded to the school. Where illegal absence is found, the student must return at once for readmission to class or a discharge from school.

CHOOSING A COURSE OF STUDY

The choice of a course of study, is your most important decision while at Tech. You should not arrive at a decision hastily and need not choose until you reach Grade IV. At some time during the first two years you will secure a *Choice of Course* card from your group adviser. On this card you must state your reasons for your choice and obtain your parents' signatures and your group adviser's approval. Programs are conducted in the assembly and conferences are held by the various chairmen each term in order to acquaint you with the courses at Tech. In addition, you will secure much valuable assistance in this respect from your studies during the first two years.

On the following pages you will find outlines of the courses. On pages 63-65 there is information concerning college entrance and scholarships. Further information may be had by consulting the files of college catalogues, or the Senior Group adviser in room 1W11.

In the Brooklyn Technical High School book list published on pages 140-173 of the handbook, you will find a list of books relating to various occupations and

to the choice of a career. Some of these books can be seen in the library. Other material on careers may be found in room 1W11.

If at any time you feel in need of help in any matters affecting your progress in school, consult your group adviser. He stands ready at all times to be your friend and counselor. The advisers for all groups for the first six grades may be seen in room 1W9. The advisers of Grades VII and VIII are in room 1W11. Their office hours are posted in these rooms.

COURSE OF STUDY PREREQUISITES

1. A student must pass two terms of Industrial Processes before he may take Chemistry or a foreign language.
2. A student must secure 75% or more in English 2 in order to take a foreign language in grade 3.
3. A student must pass two terms of Civics before he may take Hygiene.
4. Completion of Math. 3 is a prerequisite for Physics 1, Physics and Physical Measurements 1, Strength of Materials 1, Chemistry 3, Mechanical Shop 1, and Structural Shop 1.
5. Physics 1 must be taken with or prior to Strength of Materials in courses in which the latter subject is required.
6. No student may be programmed for English 7 unless he is taking or has passed History 1.
7. ARCHITECTURAL COURSE
Architectural Drawing must not be programmed more than one grade in advance of Building Construction Shop or of the pupil's Official section.
8. ART COURSE
In order to elect the Art Course a boy must:
 - (a) Receive permission from Mr. Evans;
 - (b) Attain a mark of 80% in Freehand Drawing 4.
9. CHEMICAL COURSE
Completion of Physics 2 is a prerequisite

for Power Laboratory and P. G. D. (5 periods).

10. ELECTRICAL COURSE

(a) P. and P. M. 1; P. and P. M. 2; P. G. D. and G. M.; and A. C. and C. T. must be taken in series. A pupil may not double in these subjects.

(b) Completion of P. and P. M. 1 is a prerequisite for Electrical Shop 1.

(c) P. G. D. and G. M. must be taken with or prior to Electrical Shop 2.

(d) Electrical Drawing 2 may not be programmed unless the pupil has passed or is taking P. and P. M. 1.

(e) P. and P. M. 2 is a prerequisite for Illumination.

11. MECHANICAL COURSE

(a) Machine Design and Mechanical Shop may not be programmed if more than one grade apart.

(b) Completion of Physics 2 is a prerequisite for P. G. D. (5 periods).

12. STRUCTURAL COURSE

(a) Completion of Strength of Materials 2 is a prerequisite for Structural Design and Graphic Statics.

(b) Completion of St. Des. and G. S. 1 is a prerequisite for Structural Shop 2.

(c) No student may be programmed for Surveying 1 unless he is taking or has passed Math. 5.

GROUP ADVISERS

The school is divided into units or minor schools, known as A, B, C, D, E, and F groups. After entering, pupils are arbitrarily assigned to an A, B, C, D, E, or F group. As far as possible they remain in the assigned group during the first three years of the course. Upon promotion to the seventh term, they are assigned to the senior group, 7 and 8.

Each group is supervised by a group adviser, who corresponds to one of the deans of a college. The group adviser is in charge of all of the prefects in his group,

and is the representative of the Principal of the school, in all matters pertaining to scholarship, program assignments, counseling, promotion, honors, discipline, welfare, and other interests and activities of the pupils.

It is desirable that a boy become acquainted with his group adviser early in his school life so that he may enjoy the largest measure of friendship, service, and guidance which is offered.

HEALTH EDUCATION DEPARTMENT

Bulletin of Information

For a better understanding of Health Education, read the following information.

1. The gymnasiums are open from 9:05 a. m. to 3:05 p. m. every day for required Health Education and from 3:10 p. m. to 4:45 p. m. for after school athletics and intramural sports.

2. Health Education is required twice weekly for every term in school.

3. Physical Examinations (Heart, Hernia, etc.)—Every student is required to have a physical examination at least once every year. The purpose of this examination is to determine the student's physical condition and to aid in correcting any defect he may have. It is also a prerequisite to taking the activity program.

There are three alternatives in arranging for this examination:

(a) Have your family physician fill out our blank.

(b) Be prepared to pay 25c for the examination in school.

(c) If on relief, bring a note for free examination.

A record is kept of all examinations. Your parents will be notified of your physical status.

4. Lock and Lockers—The only lock accepted will be the official school lock, and it must be registered with the Health Education teacher in charge of locks.

Locks may be changed when transferring from the upper gym to the lower gym. Re-registration of the lock is essential. See the Health Education teacher in charge.

Never leave your lock on top of the locker. Examine your lock before leaving for the day.

All locks other than school locks will be removed after notification of the student.

5. Sneakers or rubber soled and rubber heeled shoes are required. Print your name on the sneakers for safety.

6. Enter the lower locker rooms through *Single door 3S8*. Exit through *double door 3S8*. Enter upper locker rooms by way of *stairways 17 and 18*, east side of the building. Enter and leave gymnasiums by way of the *locker rooms only*.

7. Safety—Always test apparatus you are using. Make sure there is a mat under or next to the piece of apparatus upon which you are exercising. No exercises other than those prescribed are permitted.

Walk at all times. Do not run.

8. Help us keep the gymnasiums, locker rooms, and lavatories clean. Do not destroy public school property. Your cooperation will be appreciated.

9. Loss of school equipment, i.e., handballs, footballs, etc., during the gym period interferes with our program. Each squad is responsible for its equipment.

10. Your final mark is based on the following: attendance at floor work, apparatus, shoe marks, and fundamental skills in game activities.

11. Meaning of whistle—Instantaneous stop; then look and listen.

12. Discipline is based on understanding and cooperation.

PLACEMENT BUREAU

Director—MR. TAYLOR

Placement Asst.—MR. TRIMBLE

Tech is greatly interested in the success of its graduates. In order that they may be assisted in obtaining desirable positions, the Placement Bureau keeps in close touch with the alumni. Our school becomes favorably known through the contacts which our graduates make with employers in the metropolitan area. Those alumni

who succeed in their work create good will for the school and increase the demand for Tech men.

Through the efforts of the Placement Bureau, many graduates have been placed in desirable positions where their technical training could be utilized, and students have been placed in part time positions when financial necessity required them to work.

Students in need of work should consult Mr. Taylor in Room 1W11.

Alumni seeking positions are urged to keep in touch with the Placement Bureau, as it is frequently able to help them.

Many good positions are brought to the attention of the bureau by alumni who have kept the Tech spirit and are anxious to help those just entering the technical field.

Those who know of desirable openings are requested to communicate with the Placement Bureau, STerling 3-0135, Extension 6.

RYERSON ANNEX

The Ryerson Annex is located in P. S. 69 at 155 Ryerson Street. At present there are 15 classes, consisting of about 750 boys. The second and third floors of the building are used for shops, class rooms, and the rooms devoted to administrative work. The lunch booth is located in the basement. Provision is made on the second floor for reading, studying, and playing games after lunches have been eaten. The Annex has its local sales bureau and library. Many boys avail themselves of the unexcelled library facilities in the nearby Pratt Institute Library.

The pupils are encouraged to have hobbies and express themselves in creative work through their extra-curricular clubs which include the following: Airplane, Chess, Dramatic, Library and Book, Model, Radio, Coin and Stamp, Harmonica, and Survey.

There are numerous squads for assisting in various types of service, such as S. O. S., lunch room, sales bureau, bookroom, library, and office. A number of boys join the main building squads for swimming, track, soccer, rifle, golf, and many other activities. Interclass contests are held in chess, checkers, handball, and spell-

ing. Intramural games in basketball, badminton, and touch tackle are held in the Main Building Gymnasium between Ryerson classes and Main Building classes. Each class has a secretary, and lead and end monitors. Honors are awarded at the end of each marking period to those pupils who have maintained a weighted average of at least 75 percent in all subjects and a minimum mark of at least 70 percent in each subject. At the end of the term names are permanently enrolled upon the Perpetual Honor Board.

Good health and intelligent budgeting of home study hours are essential in laying the foundation for a successful career in Tech. Help classes are conducted after school hours for pupils who may have fallen behind in their work because of absence or slowness in adjusting themselves to high school work.

CANDIDATES FOR GRADUATION

Only candidates for graduation have the privilege of wearing the graduating class pin or ring, and of having their pictures and records in *The Blueprint*. This includes all those registered in the Eighth Grade prefect classes, and those in the Seventh Grade who, on trial, have been given a graduating program.

If you have any doubt as to whether or not you are entitled to this privilege, consult the Eighth Grade Adviser.

MEDALS AND PRIZES

The Alexander medal is given for excellence in Fourth Grade Freehand Drawing.

The Arts and Trades medal is given for excellence in Second Grade Freehand Drawing.

The following are awarded at Commencement:

CHARLES W. COAN MEMORIAL—A gold medal for excellence in Drawing and Design.

MATHEMATICS—A gold medal for the highest average in Regents examinations for the entire course of mathematics given in this school; a silver medal for the next highest average. In addition, bronze medals are given to those who have an average of 90 percent or over.

ENGLISH—Two gold medals are awarded for the best

essays written by students of senior English—one for the best technical essay and one for the best non-technical essay.

HISTORY—A gold medal for the highest average in American history.

FRENCH—The French Alliance medal donated by the French Alliance to the candidate for graduation who has the highest rating in the Regents examination and classroom work in the senior year.

GERMAN—A gold medal awarded by the American Association of Teachers of German to the student of the graduating class with the highest rating in the Regents examination and classroom work in the senior year.

CHEMISTRY—A gold medal awarded by the B. T. H. S. Chemical Society for excellence in chemistry to a member of the senior class in the chemistry group who has specialized in chemistry for three years. A silver medal to the member of the senior class who obtained the highest mark in the Regents examination in chemistry.

LEADERSHIP—A gold medal presented by the Class of January, 1923, awarded to the student who has shown in Tech the most marked qualities of leadership, initiative, and executive ability.

ALL-TECH MEDAL—Awarded by the Class of June, 1926, to the best all-around boy.

COOPERATION IN GOVERNMENT AWARDS—Medal and Diplomas. The number of diplomas is determined by the registration of the school.

METAL SHOP AWARD—For excellence in machine shop practice. This gift is usually a micrometer presented by L. S. Starrett Company or Brown & Sharpe Manufacturing Company.

HEAT TREATMENT OF METALS AWARD—The American Society for Steel Treating has awarded a prize, donated by the New York Chapter, consisting of full membership in their society, to the student in the heat treatment of metals class that has done the most meritorious work during the past term.

SURVEY AWARD—Given semi-annually to the member of the graduating class who has performed the most distinguished service for *The Survey*.

The following boys received these awards during the period from June, 1934 to January, 1937:

CHARLES W. COAN MEMORIAL MEDAL

June, 1934—James R. McGowan
 Jan., 1935—Constantino Loffredo
 June, 1935—Frederick Vick, Keith Halliday
 Jan., 1936—John Van Dyk
 June, 1936—Aloysius Cross
 Jan., 1937—Louis Walkover

Honorable Mention

June, 1934—Henry J. Johnsen -
 Jan., 1935—Lewis Weiss
 June, 1935—Paul Casazza
 Jan., 1936—Harold R. Phillips, Jr.
 June, 1936—Lawrence Petry
 Jan., 1937—Arnliev Jensen

MATHEMATICS

Gold Medal

June, 1934—Stanton W. Schreiber
 Jan., 1935—Roger A. Moore
 June, 1935—Wilbert Gumphrich
 Jan., 1936—J. William O'Donnell
 June, 1936—Julius Port
 Jan., 1937—George T. Ten Eyck

Silver Medal

June, 1934—Milton Steiner
 Jan., 1935—William Deering
 June, 1935—Charles Furrer
 Jan., 1936—Sydney Kalver, Alexander Harvey
 June, 1936—Benjamin Kaplan
 Jan., 1937—Frederic Arnold, Jr.

Bronze Medal

June, 1934—Isidor Bailowitz, Frederick Burg, Harold Chalet, Frank LaBianca, Frederick Lehman, Thomas Mulligan, Nicholas Newman, Clarence Palm, Joseph Riley, Jr., Arnold Salvesen, Francis Scally, Leo Strauss.
 Jan., 1935—Michael Guadagno, Abraham Lipkowitz, Milton Thronsen.

June, 1935—George Armour, Nathan Asher, Robert Cole, Keith Halliday, Walton Johnson, William Moorhead, Mischa Schaffer, Seymour Schwartz, Filmore Van Voris, Frederick Vick, Raynor Wade.

Jan., 1936—James Broderick, Edward Carpenter, Barnett Chernick, Myron Cohon, William Derganc, Herbert Hymowitz, Edward Lee, Nathaniel Robins, Gustave Sedat, Harold Seestadt, Joseph Spindler, William Tackaberry, William Tierney, George Vaffier.

June, 1936—Victor Antaki, Robert Best, Morton Burdman, Isadore Danziger, Murray Falkin, Ira Friedman, John Harrington, Edward Homburger, Robert Koenig, Horace Linsky, Frank Maizel, James McLinden, Joseph Ostrovitz, Martin Ruderfer, Frank Ryan, Jr., Frank Youngblood, Stephen Zvekan.

Jan., 1937—John N. Ochse, Howard C. Krisch, Edward Gregorilitch, Rudolph Hensel, Bernard Ostrow, Robert Chilton, Alexander Green, Bernard Brown, Robert Laupheimer, Thomas Woods, Albert Denham, Chadwick Carpenter, Alex Petrovsky, Nathan Goldstein, Michael Kremsky, Joseph Brancaccio, Harry Stein, William Harnist, Robert Perinowich, Robert Board, Heinz Lenkert, Herbert Haber, Raymond Schlesier, Edward Mandelbaum, Joseph Rosenberg.

ENGLISH—TECHNICAL

Gold Medal

June, 1934—John Ryan
 Jan., 1935—Robert Bryson
 June, 1935—Donald Mayorga
 Jan., 1936—Harold Phillips, Jr.
 June, 1936—John Felimi
 Jan., 1937—James De Lury

ENGLISH—NON-TECHNICAL

Gold Medal

June, 1934—William J. Hanna
 June, 1935—Richard Warner

Jan., 1936—John Van Dyk
June, 1936—Carroll Pfeifer
Jan., 1937—Matthew Peloso

Silver Medal

Jan., 1936—Claude Peters

HISTORY

Gold Medal

June, 1934—Joseph Riley
Jan., 1935—Roger A. Moore
June, 1935—Raynor Wade
Jan., 1936—Harvey Demsky
June, 1936—Louis Davis
Jan., 1937—Frederic Arnold, Jr.

Silver Medal

June, 1934—Charles V. Luchun

Honorable Mention

June, 1934—Arnold Field, William Hanna, James McGowan, Stanton Schreiber, Jules Steinlauf.
Jan., 1935—William Sackson, Arnold Jacobsen
June, 1935—Amos Biolsi
Jan., 1936—Arthur Scharf, William Tackaberry, John Van Dyk
June, 1936—Norman Andersen, Walter James, Benjamin Kaplan, Frank Maizel
Jan., 1937—Theodore Cohen, Jack Van Gelder, Edward Mandelbaum

FRENCH

Alliance Medal

June, 1934—Irving Baron
Jan., 1935—Roger A. Moore
June, 1935—Frank D'Amico (3 years)
Walton Johnson (2 years)
Jan., 1936—Louis Maisto
June, 1936—Frank Ryan
Jan., 1937—Edward Mandelbaum

Honorable Mention

Jan., 1935—Constantino Loffredo
Jan., 1936—Amos Biolsi
June, 1936—Horace Linsky
Jan., 1937—Walter Jones

GERMAN

Gold Medal

June, 1934—Carl Zimmer
Jan., 1935—Edwin Erickson
June, 1935—Victor Ragosine
Jan., 1936—Carl Becker
June, 1936—Werner Lange
Jan., 1937—Frank Schlicke

Honorable Mention

Jan., 1935—George Plossl
Jan., 1936—Herbert Becker
June, 1936—Clemont Wolf
Jan., 1937—Frederic Arnold, Jr.

CHEMISTRY

Gold Medal

June, 1934—Louis Faerman
Jan., 1935—Richard Muller
June, 1935—Ernest De Lia
Jan., 1936—Harvey Demsky, Edward Weiner
June, 1936—Herbert B. Reed, Frank Youngblood
Jan., 1937—Norman Sonntag

Honorable Mention

June, 1935—Robert Vessiny
Jan., 1937—William Hudson

Silver Medal

June, 1934—Walter D. Tucker, Frederick Burg
Jan., 1935—Roger A. Moore
June, 1935—Charles Frazier
Jan., 1936—Nathaniel Robins
June, 1936—Benjamin Kaplan
Jan., 1937—Alexander Green

Honorable Mention

June, 1934—William Hanna
Jan., 1935—John Bettner
June, 1935—George Armour
Jan., 1936—Moses Siegel
June, 1936—Victor Antaki
Jan., 1937—Frederic Arnold, Edward Mandelbaum

LEADERSHIP

Gold Medal

June, 1934—George L. Gray
Jan., 1935—P. Irving Olsen
June, 1935—Charles Southard
Jan., 1936—William Johnston
June, 1936—Stephen Zvekan
Jan., 1937—Robert Perinovich

ALL-TECH MEDAL

June, 1934—George L. Gray
Jan., 1935—Lewis Weiss
June, 1935—Charles Southard
June, 1936—John Felimi
Jan., 1937—Robert Perinovich

COOPERATION IN GOVERNMENT

Medal

June, 1934—George L. Gray
Jan., 1935—Roger A. Moore
June, 1935—Robert Cole
Jan., 1936—William Johnston
June, 1936—Frank Maizel
Jan., 1937—Sidney Gordin

Diplomas

June, 1934—William Hanna, James McGowan, Frederick Noeth, Charles Overbeck
Jan., 1935—George Gianakos, P. Irving Olsen, Rowland Schloesser, William Stone, Kenneth Wheeler
June, 1935—John Anderson, William Farinon, Donald Mayorga, Ralph Staiger, Charles Southard
Jan., 1936—Bernard Firestone, Sydney Kalver, Gandolfo Monfiletto, Ralph Parker, Edward Steln
June, 1936—Stanley Cypher, John Felimi, Milton Maxwell, Carroll Pfeifer, Robert Wahlquist, Stephen Zvekan
Jan., 1937—Fred Arnold, Albert Denham, William Eposito, Sol Jacknowitz, Walter Jones, John Ochse

METAL SHOP AWARD

June, 1934—Harrison Hilbert
Jan., 1935—William Bryant

June, 1935—George Dubiel

June, 1936—John Craven

Jan., 1937—John Stonitsch

Honorable Mention

Jan., 1935—Howard Grantz

HEAT TREATMENT OF METALS AWARD

June, 1934—Frank Foote, Donald Furman

Jan., 1935—Charles Knispel

June, 1935—Melvin Klein

Jan., 1936—Edward Wohlers

June, 1936—Michael Grofik

Jan., 1937—Alfred Arena

SURVEY AWARD

June, 1935—Ralph Staiger

Jan., 1936—Bernard Firestone

Jan., 1937—Sidney Gordin

HEALTH EDUCATION AWARD

June, 1934—Louis Cassidy

June, 1935—Charles Southard

June, 1936—John Olszewski

COLLEGE ENTRANCE

The College Preparatory course given at the Brooklyn Technical High School satisfies the requirements for admission to the United States Naval Academy, Brooklyn Polytechnic Institute, Lehigh University, Rensselaer Polytechnic Institute, Stevens Institute, New York University (School of Technology), Massachusetts Institute of Technology, Carnegie Institute of Technology, Cooper Union, University of Pennsylvania, and others.

If a boy begins his foreign language in the second year and takes both a foreign language and chemistry in the fourth year, he will have the requirements for admission to certain colleges that either require or prefer three years of a foreign language. Among these colleges are the College of the City of New York, Brooklyn College, Columbia, Cornell, Harvard, Yale, and Princeton.

The Principal will refuse to recommend for college entrance graduates who barely pass in their work. Each candidate for certification must show that he is of good college material. The certification mark for college is

70 percent. Several colleges require a higher mark for admission; for example, one college requires an average of 80 percent. In all cases, a complete record of a pupil's work is sent to the higher institution as a basis for admission. The group adviser of Eighth Grade students will discuss with boys any questions concerning college entrance.

UNIVERSITY SCHOLARSHIPS

A New York State scholarship entitles the holder to the sum of one hundred dollars for each year in which he is in attendance at an approved college in the state during a period of four years.

Candidates for these scholarships must be citizens and residents of the State of New York. College entrance diplomas constitute in part the basis for awarding University Scholarships, and they are issued only to those

1. Who have been pupils in the recognized secondary schools of this State for at least one-half of the school year immediately preceding the award of the diploma.
2. Who have attended such schools for at least three years.
3. Who have completed within six years of enrollment an approved four-year high school course.
4. Who have passed with an average standing of not less than 75 percent the following Regents examinations:
 - (a) English (four years)
 - (b) Foreign language (three years)
 - (c) Intermediate or advanced algebra
 - (d) Plane geometry
 - (e) American history

PULITZER SCHOLARSHIPS

These scholarships provide \$250 for each of the four years of a course in any first-class college in the United States. Successful competitors who choose Columbia University will receive, in addition to the allowance, free tuition in Columbia College. After satisfying certain requirements of scholarship, character, and service, the applicant will be required to take the June examinations of the College Entrance Examination Board at Columbia University in enough subjects to complete the entrance

requirements of the college he proposes to enter.

The following Tech students have received Pulitzer Scholarships:

- 1924—Herman Eckert
- 1926—Frank Zeitlin
- 1927—Samuel Benedict Levin
- 1928—Albert Jansen
- 1929—Helmut Schulz
- 1930—Irving Rogowsky
- 1932—Onni Law
- 1936—Stephen Zvekan

OTHER SCHOLARSHIPS

Scholarships are offered by a number of colleges. For further information consult the adviser of the Eighth Grade.

All students who wish to take competitive examinations or otherwise apply for scholarships must first have the recommendation of the Principal.

RANK IN CLASS

Early in their senior term the candidates for graduation are given a preliminary rank in class based on their last three weighted averages. At the end of the term a final rank is given based on the last four weighted averages. The rank in class is used in recommending students for college entrance and for employment.

VALEDICTORIAN

The valedictorian is chosen on the basis of weighted averages for the first seven terms of the course.

To date, the valedictorians have been as follows:

- Jan., 1923—Lewis G. McDowell
- June, 1923—George Wald
- Jan., 1924—Herman Eckert
- June, 1924—Charles Panish
- Jan., 1925—George B. Papen
- June, 1925—William Lightbowne
- Jan., 1926—Frank Zeitlin
- June, 1926—Gordon Atkins
- Jan., 1927—George Claussen
- June, 1927—Samuel Benedict Levin
- Jan., 1928—Albert Jansen

June, 1928—Marvin O. Fichter
 Jan., 1929—Raymond F. Moran
 June, 1929—Helmut Schulz
 Jan., 1930—Richard Shaw
 June, 1930—Charles Ahlund
 Jan., 1931—Albert Kaplan
 June, 1931—Donald Gittens
 Jan., 1932—Sanford Fox
 June, 1932—Onni Law
 Jan., 1933—Jerome Markey
 June, 1933—Sydney Rothfeld
 Jan., 1934—John Eric Laestadius
 June, 1934—James R. McGowan
 Jan., 1935—Roger A. Moore
 June, 1935—Keith Halliday
 Jan., 1936—Harold R. Phillips, Jr.
 June, 1936—Frank Maizel
 Jan., 1937—Frederic Arnold, Jr.

ALUMNI ASSOCIATION

At present the alumni group is functioning through an executive committee consisting of representatives of the classes which have graduated from Tech. This committee meets from time to time, discusses and acts upon matters of interest to the alumni and to Tech, and is instrumental in promoting a spirit of loyalty and co-operation among the graduates.

Fred. E. Desmond is President of the Alumni, Earl Dunham, Treasurer, and Alvin Cowan, Chairman of the Executive Committee.

The Alumni Association has undertaken the raising of a scholarship fund in memory of Sigrid C. Freeberg, Senior Adviser of Tech from the organization of the school until her death in October, 1936. Scholarships from this fund will be awarded to deserving graduates who need financial assistance in carrying on their college work. Mr. Frank Stewart is chairman of the Committee.

In addition to the Alumni Association, which any graduate of Tech may join, there are smaller groups, consisting of the graduates of the terminal courses. The Department Chairmen in charge of these courses will be glad to give information in regard to these groups.

PARENTS ASSOCIATION

This association is organized to promote and develop the interests of parents. These interests include the boy, the home, and the school.

A common tie binds all parents—the welfare of their children. To this end an opportunity is provided for parents to better understand their function and responsibilities as parents. The school is best served when parents try to encourage their sons to become responsible adults and good citizens.

The programs are designed to place before the parents the workings of the school and, alternately, to have them hear speakers on subjects which vitally interest them.

As outlined in the Constitution, the management of the association is vested in the Executive Committee. This committee is composed of the officers, chairmen of the standing committees, a parent representative for each 500 boys, the historian, the Principal, Group Advisers, and the Teachers in charge of Annexes.

At the beginning of each term, the parents of incoming students are asked to attend a meeting called by the Principal for the purpose of explaining the various courses, aims and ideals of the school. At this meeting they learn of the existence of the Parents Association.

The association is affiliated with the United Parents Associations.

The money raised through dues and social activities goes in some way to benefit the boys. Books have been bought and rebound for the Library, and instruments have been furnished for the musical organizations of the school. Plans are in the making which will give the work of the association an even wider scope.

Membership is open to parents and guardians and it is hoped that the slogan may in truth become a fact—*"Every parent an active parent."*

The officers are: Mrs. George E. Hendee, President; Thomas A. Foster, Vice-President; Milton J. Harnist, Acting Secretary and Treasurer; Mrs. Alvin H. Rosenbaum, Financial Secretary.

TECH SCIENCE BULLETIN

Faculty Adviser—MR. WASHBURN

The *Tech Science Bulletin* is a scientific paper sponsored by the Chemistry Department and published by and for Tech students. It aims to present the latest developments in science in a condensed and readable form and to create interest in scientific matters. The articles are written by boys on the staff from observations, visits, lectures, modern scientific writings, and special experiments performed by the boys. All students of Tech, however, are encouraged to submit articles that are worth while and interesting.

THE LIBRARY

The Library, located in 5C1, is entered through the West entrance. The Library hours are from 8:40 to 4:00 p. m.

Pupils of any term may use the Library without passes in the a. m. prefect period. After 3:05 p. m. admittance to the Library on Mondays, Tuesdays and Wednesdays is limited to 1st, 2nd, 4th, and 8th terms, and on Thursdays and Fridays to 3rd, 5th, 6th, and 7th terms.

During study periods pupils may use the Library on passes from the Study Halls. These passes may be for the term or for a single period.

All textbooks must be left in the check room at the entrance to the Library.

The Library contains English supplementary reading books, volumes on History, Civics, Biography, Travel, Industrial Processes, Physics, Chemistry, Mathematics, Woodwork, Metalwork, Mechanical and Freehand Drawing, and books in foreign languages. Forty-eight magazines are also received.

A catalog on printed cards alphabetically arranged, offers a complete index to the books by author and subject, and the Readers' Guide, which is kept on file, supplies an index to most of the magazines received.

Books are circulated for home use for the period of one week to pupils presenting G. O. or Program cards. Renewals for three days are allowed. Students may not have more than two books out at a time—one fiction

and one non-fiction, or two non-fiction dealing with different subjects.

Magazines may not be taken from the Library.

LIBRARY RESOURCES

Standard Works of Reference

Encyclopaedia Britannica—for most purposes the best encyclopedia in English.

New International Encyclopaedia—an excellent encyclopedia, with authoritative articles, illustrations, and bibliographies.

Encyclopedia Americana—good general encyclopedia, especially useful for technical subjects.

Nelson's Loose-Leaf Encyclopedia—brief articles only.

New Century Dictionary—a condensed form of the Century Dictionary and Cyclopaedia, the most comprehensive and detailed American dictionary. Has supplements devoted to proper names—geographical, historical, literary, and mythological.

Webster's New International Dictionary—Contents: Dictionary, pronouncing gazetteer, pronouncing biographical dictionary. The most conservative, and most authoritative one-volume dictionary.

Standard Dictionary—contains dictionary, including biographical, geographical, and mythological words. Aims to give all new words whether accepted by good usage or not.

Hoyt's New Cyclopaedia of Practical Quotations, containing 10,000 well-known quotations indexed by subjects and authors.

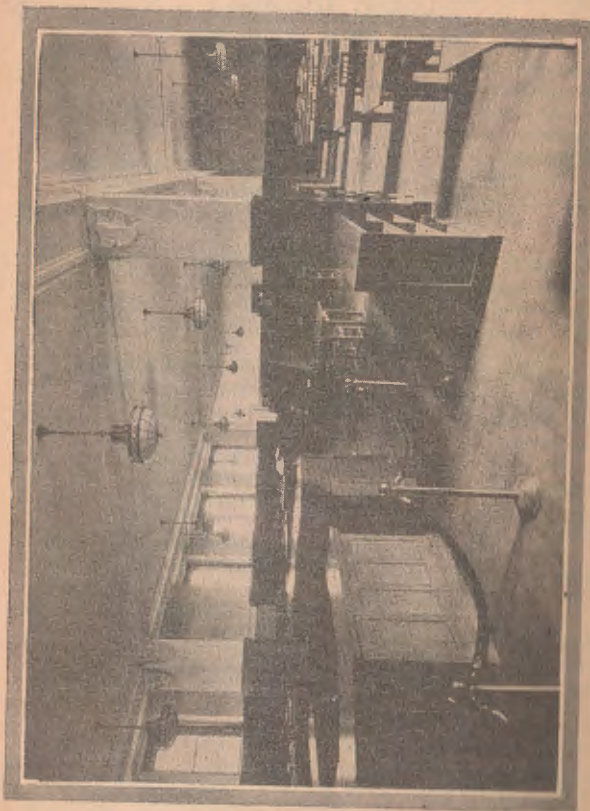
Readers' Guide to Periodical Literature—an index to periodicals by subject and author. Gives name of periodical in which article appears, together with the date of the periodical and the page containing the article.

Who's Who in America.

Concise Dictionary of National Biography—a summary of the lives of noted Englishmen.

Oxford Companion to English Literature—a dictionary of the lives and works of English and American authors.

Living Authors.



THE LIBRARY

Authors Today and Yesterday.
Stevenson—Home Book of Verse.
Granger—Index to Poetry.
World Almanac.
Congressional Directory.
Lippincott's Gazetteer.
Cram's Modern Reference Atlas.

Technical Reference Books

Machinery Encyclopedia.
Mechanical Engineers' Handbook.
Electrical Engineers' Handbook.
Radio Manual.
Aircraft Handbook.
Aircraft Yearbook.
Aviation Handbook.
Civil Engineers' Handbook.
Handbook of Chemistry and Physics.
Thorpe's Dictionary of Applied Chemistry.
Thorpe's Industrial Chemistry.
Rogers' Industrial Chemistry
Hanley's Twentieth Century Formulas.
Scientific American Cyclopedia of Formulas.
Dictionary of Technical Terms.
Electrical Dictionary.
Kidder's Architects' and Builders' Handbook.
Machinery's Handbook.
Structural Engineers' Handbook.
Hool and Johnson, Handbook of Building Construction.
Carnegie Steel Company Pocket Companion.
Handbook of Cost Data.

List of Magazines in the Library

Aero Digest.
American Boy.
American Builder.
American-German Review.
American Machinist.
American Magazine.
American Photography.
Architectural Record.
Asia.
Atlantic Monthly.

Aviation.
 Bird Lore.
 Boy's Life.
 Camera.
 Current History.
 Deutsche Echo.
 Etude.
 Field and Stream.
 Fortune.
 Literary Digest.
 Living Age.
 Model Craftsman.
 Modelmaker.
 Motor Boating.
 National Geographic.
 Nature.
 News Week.
 Outdoor Life and Recreation.
 Pencil Points.
 Popular Mechanics.
 Popular Science.
 Q. S. T.
 Radio News.
 Review of Reviews.
 Saturday Review of Literature.
 School Arts.
 Science Leaflet.
 Science News Letter.
 Scientific American.
 Scribner's.
 Stamps.
 Theatre Arts.
 Time.
 Travel.

GENERAL ORGANIZATION

Importance

The General Organization governs all the extra-curricular activities of Tech. It raises and disburses the money needed by athletic and non-athletic activities. Teams, clubs, and squads must be chartered by the General Organization before they may operate. Students wishing to participate in any extra-curricular activity, to run for any office, or to vote in any election must belong to the General Organization. Upon the recommendation of coaches and faculty advisers, students who have done meritorious work in an extra-curricular activity are granted honors by the General Organization Executive Committee. In short, without the General Organization at their head, Tech's extra-curricular activities could not exist.

Organization

The General Organization consists of two governing bodies: the Board of Directors and the Executive Committee. The Board of Directors is composed of the Principal, the Honorary President, and one other teacher selected by these two. The Executive Committee is composed of five members elected from the student body and five elected from the members of the faculty. A president and a vice-president, elected by the students from the student body, and the honorary president, the treasurer, and the third member of the Board of Directors, appointed by the Principal, are *ex-officio* members of the Committee. In addition three first-grade students are elected each term to represent their class.

The president and vice-president are elected for one school term. The three members appointed by the Principal continue in office until new appointments are made. The other ten elected members serve for one year. Five are elected each school term: in the fall three teachers and two students, and in the spring two teachers and three students. The president, treasurer, and honorary president have no vote. The three first-grade representatives collectively have one vote.

Standing Committees

In addition to the officers already named there are two standing advisory committees appointed by the Principal from among the members of the faculty. These are the Athletic and Non-Athletic Committees. The members of the Athletic Committee are Mr. Laub, Chairman, and Mr. Milde and Mr. Macandrew. The members of the Non-Athletic Committee are Mr. Koch, Chairman, and Mr. Odell and Mr. Taylor.

Requirements for Office

To hold any office on the Executive Committee a person must be a member of the General Organization.

Teacher members must be regularly and permanently appointed to the faculty of the school.

The president and vice-president must have attended the school for at least one calendar year; they must be accredited with at least eleven points towards graduation (a prepared subject which has five recitations a week taken for a full school year counts as one point); and they must have passed all their subjects at the end of the term previous to their election. Other student members must have attended the school for at least one calendar year; they must be accredited with at least nine points towards graduation; and they must have passed at least eighteen hours of prepared work at the end of the term previous to their election.

Honors

All requests for honors must be made in duplicate on the proper forms which may be secured from Mr. Milde or Mr. Trimble. Faculty advisers should certify that the students for whom they are requesting honors have passed sixteen hours of work at the end of the term, and that they are members of the General Organization. Coaches should submit their requests to Mr. Wikel, Chairman of the Athletic Committee. Other advisers should submit theirs to Mr. Koch, Chairman of the Non-Athletic Committee. These requests are first passed by their respective committees before being submitted to the Executive Committee.

Honor certificates are distributed by faculty advisers and coaches to those to whom they have been granted. For achievement in athletics an honor cer-

tificate entitles its holder to one of the following: a sweater, a felt T, a felt modified T, or a felt BTHS monogram. A boy having earned a sweater will receive it free. The first T or modified T earned by a boy will be given to the boy. The BTHS may be purchased. Mr. Milde distributes athletic honors. Students holding athletic certificates should see him for their awards.

The Purchase of Athletic Awards

A boy who earns his first T, or his first Mod. T, in any sport is entitled to his felt letter from the General Organization. If subsequently he earns either award in another sport, in order to receive another T, or Mod. T, he must return the first to Mr. Milde. If subsequently he earns another T, or Mod. T, in the same sport he may purchase a second award provided he returns the first. The same principle applies to the BTHS. A student who has earned a T, a modified T, or a BTHS may purchase a second emblem of the same type as the first upon returning the first even though he has not been granted a second.

Intramural Honors

Members of champion grade teams in an intramural tournament will receive certificates entitling them to wear the intramural emblem. Upon presenting their certificates to Mr. Milde, students may purchase these emblems. At no time may a student have in his possession more than one intramural emblem for the same sport. If he cares to purchase a second, he must return the first he bought to Mr. Milde. Student assistant managers of Intramurals shall receive a Mod. T felt letter for services rendered during one school term. Student managers of Intramurals shall receive a T felt letter for services rendered during one school term.

Non-Athletic Honors

Students holding certificates for achievement in a non-athletic activity should present their certificates to Mr. Milde, in order to receive or purchase their awards. A boy having earned his first T or Modified T is entitled to his pin free. He may receive only one of these pins regardless of how many certificates he earns in

different activities. T or Modified T pins may not be bought. A boy having earned a BTHS pin in an non-athletic activity may purchase a pin upon presenting his certificate to Mr. Milde. Only one of these may be purchased by a student regardless of the number of activities he has earned them in.

Note: Although a student may possess only one athletic award of the same type and only one non-athletic award of the same type, he may possess both athletic and non-athletic awards.

Appropriations

Requests for appropriations should be made out in triplicate on the correct forms and submitted to either Mr. Koch or Mr. Laub depending upon whether the appropriation is for a non-athletic activity. These forms may be secured from Mr. Trimble or Mr. Milde.

New Clubs and Teams

Students wishing to organize a new group should consult Mr. Koch, Mr. Laub, or Mr. Milde. In order to operate they must secure a charter from the Executive Committee. To obtain a charter they must first secure the promise of a member of the faculty to serve as advisor or coach. (Mr. Koch, Mr. Laub, or Mr. Milde may be able to suggest an adviser.) They must draw up and sign a constitution outlining the purposes of the new organization. They must submit this constitution to either Mr. Koch or Mr. Laub depending upon the nature of the new organization. Finally, if their request is approved by either the Athletic or Non-Athletic Committee, it must be passed by the Executive Committee.

Excerpts from the Constitution, By-Laws and Amendments

The excerpts printed here contain information of interest to the average student. The complete constitution and by-laws may be seen upon application to Mr. Milde, Honorary President.

Preamble

We, the Principal, teachers and students of the Brooklyn Technical High School of the Borough of Brooklyn, in the City and State of New York, in order

to regulate the establishment and practices of the various literary, athletic, musical and other social organizations of the school, to provide for the support of such organizations, and to promote the best interests of the school generally, do ordain and establish this constitution for the General Organization of the school.

Article I.—Name and Purpose

Section 1. This association shall be known as the General Organization of the Brooklyn Technical High School.

Section 2. Its purpose shall be (a) to provide a regular mode of procedure for the organization and establishment of all clubs, associations, athletic activities, and societies connected with the school; (b) to provide general regulations for their conduct and practices; (c) to define their rights and privileges; (d) to provide means for their support; (e) to make, through the Board of Directors, all contracts and agreements between them and all other persons, firms or corporations; (f) to act as collector, custodian, and disburser of all funds; (g) to transact all other business of general interest to the teaching staff and the student body of the school not provided for.

By-Laws and Amendments to By-Laws

Chapter I, Section 1—Membership

Any student or teacher of the school may become a member of the General Organization upon payment of the dues for the current term. The dues shall be twenty-five cents each term.

Note: A By-Law of the Board of Education of the City of New York forbids a member of a high school secret society from participating in any school extra-curricular activity. Students belonging to such organizations may not join the General Organization nor enjoy any of the privileges extended by this organization. Students belonging to secret societies and participating in General Organization activities are likely to be dismissed from the school; or if they are candidates for graduation, they will not be granted a diploma.

Amendments to By-Laws, Chap. I, Sec. 2.
As Amended in Amendments to By-Laws

I. Beginning with the Spring Term of 1937 the election of officers to the General Organization Executive Committee shall be held during the second Third of each school term in accordance with the schedule and regulations hereinafter set forth.

II. Freshmen (first termers) shall be permitted to vote for officers on the Committee but shall no longer elect their own representatives.

III. The elections shall follow as closely as possible the following schedule:

A. The schedule of elections and a list of the positions to be filled shall be announced and posted in prefect rooms during the assembly periods of the first week of the second Third.

B. Applications for permission to run in the primaries must be filed with the Committee on Elections in the General Organization Office before 3:15 p. m. on the second Wednesday of the second Third.

C. Primaries shall be conducted in prefect rooms during the assembly periods of the third week of the second Third.

D. Conventions shall be held on the afternoon of the third Wednesday of the second Third.

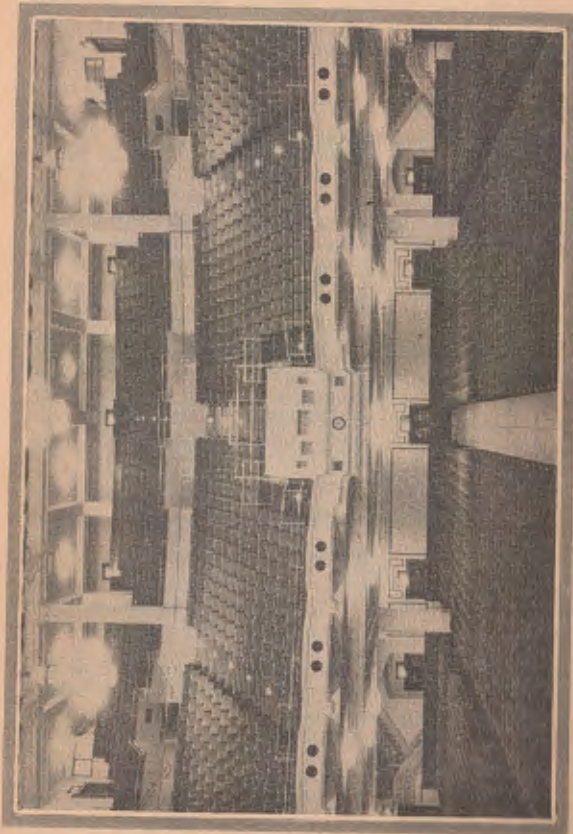
E. Campaign speeches shall be made in the assembly periods of the fourth week of the second Third.

F. The election shall be held during the assembly periods of the fifth week of the second Third.

G. The vote of any given prefect class shall be tallied under the supervision of the prefect on the day the students in that prefect class vote; but the vote of the entire school shall not be tallied until the second day of the election.

H. Officers shall be installed during the assembly periods of the week following the election.

IV. The scholastic requirements for office shall be the same as provided in Article II, Section 1, Paragraph 5, and Article IV, Section 2, Paragraph 2 of the Constitution, but in addition the candidates must have passed the usual sixteen points of work at the end of the first Third.



AUDITORIUM

V. The President and Vice-President shall serve from the time of their installation to the time of the installation of their successors in the following school term. The members of the Executive Committee shall serve for one calendar year from the date of their installation to the date of the installation of their successors in the following year.

VI. No student shall run for office if he knows that he will not be a student of the school during the school term following his election.

VII. Vacancies which occur between any two elections by elected officers leaving school or by resignations, shall be filled by the candidates for the same positions who received the next highest number of votes.

VIII. A student member of the Executive Committee wishing to run for a higher office shall resign from his office, but his resignation shall not take effect until the installation of newly-elected officers.

Regulations Pertaining to the Holding of Elections

XII. Beginning with the Fall Term of 1936 and continuing thereafter, the following regulations apply to the election and to those running in them.

A. Applications for permission to run in the primaries shall be submitted only on the form provided by the General Organization.

B. When submitted, these forms shall be properly and completely filled out in every respect except for the signature of the Chairman of the Scholarship Committee.

C. A student who submits applications for permission to run in more than one party primary shall be denied permission to run in any primary.

D. Any party other than the traditional Blue and White Parties, shall make known to the Honorary President its intention of entering the election at least two days before the day appointed for the consideration of applications for permission to run in the primaries, by presenting to him a statement of the party platform and a petition signed by 200 G. O. members requesting that the party be organized.

E. Delegates to Party Conventions shall be instructed by the party members of their prefect class for which candidate to vote. The credentials of the dele-

gates shall contain the instructions given to the delegates and shall be on the forms provided by the General Organization office. These credentials shall be collected at the Party Conventions, and the vote taken by tallying the names of candidates as they appear on the credentials. Should no candidate receive a majority vote, the name of the candidate receiving the fewest votes shall be removed from the list. The delegates instructed to vote for the eliminated candidate shall then be separated from the other delegates and shall continue voting until a candidate or candidates have received a majority of those attending the convention.

Clubs and Membership

CHAPTER II.

Section 1. No club, association, society, or activity of any nature shall be formed in the school except under a charter (or in the case of athletics, the approval of the Athletic Committee and G. O. Executive Committee) approved by the G. O. Executive Committee and signed by the Honorary President, the Principal, the Secretary, and the Chairman of the Committee on Awards. No society shall be so chartered and no activity approved unless it have a purpose apart from a social one.

Section 2. No student shall be a member of a chartered organization or team, who is not a member of the G. O., who shall fail to maintain a scholastic record of sixteen points per term, or who shall have conducted himself in such a manner as may reflect discredit on the school.

Section 3. No student shall be a member of any athletic team until he files a physician's certificate of fitness and parent's permission to play.

CHAPTER III.—Athletic Schedules

Section 2. No athletic schedule shall go into effect until it has been ratified by the athletic committee; this to be interpreted as applying to any competition in any branch of athletics.

Amendment to By-Laws, Chapter IV, Section 5

Athletic Honors—General

Awards shall consist of the T, Modified T, BTHS, and such medals and other insignia, such as gold or silver footballs, spiked shoes, etc., emblematic of the several sports, as may be provided for.

Any boy who, having played on a varsity team for three years and having won a Modified T and a T or 2 T's, is recommended by his coach for additional honors may be awarded a sweater and a special T. This sweater is to be purchased by the General Organization if the financial condition of the treasury warrants the purchase.

Except football teams, which shall receive special awards as herein provided, teams which win city championships shall receive gold awards and teams which win borough or division championships shall receive silver awards appropriate to the sport in question, unless the financial condition of the G. O. makes the expenditure necessary for the same impossible.

Note: This provision abolishes the championship "T."

The sports in which Tech shall officially compete with other schools or organizations shall be the following:

Football, Baseball, Basketball, Track, Soccer, Cross-Country, Swimming, Golf, Tennis, Rifle, Hockey, Handball.

In order to be eligible for an award a candidate must be a member of the G. O., his disciplinary record must be clear at the time the request is made, and he must have passed sixteen periods of prepared work or the equivalent at the final marking period of the term.

Awards should be requested by the coaches as soon as possible after the term marks are in, that they may be acted upon at the final meeting of the G. O.

The procedure for making awards shall be as follows: the coach or adviser of an activity shall make recommendations on the regular form. These shall be acted upon by the Athletic Committee at its next meeting following and then submitted to the Executive Committee of the G. O. to be acted upon at its next meeting following.

The basis for awards in each sport appears in the

following schedule. It is assumed, of course, that the candidate's work has been satisfactory to the coach. Where such is not the case, a lower honor than that indicated may be requested.

In exceptional cases where a coach feels that a boy is entitled to an honor higher than that which he would ordinarily receive, or in cases not covered by the schedule, the coach may recommend the candidates for the honor he thinks the latter should receive, stating his reasons for such request.

Schedule of Awards

I. FOOTBALL

T—For playing in two-thirds of the games.

Mod. T—At the discretion of the coach for playing fewer than two-thirds of the games.

BTHS—At the discretion of the coach for members of the scrub team who do not play in any games.

III. BASKETBALL

T—For being a regular member of a team which wins a division championship or better; for playing in two-thirds of the games, having previously won a Mod. T and having maintained or bettered the standard previously set.

Mod. T—For playing in two-thirds of the games; for playing in less than two-thirds of the games, but having previously won a BTHS and having maintained or bettered the standard previously set.

BTHS—For playing in at least 2 games; for practicing regularly and faithfully.

V. TRACK

The track season in any school year shall be considered as extending from the first indoor meet to the last outdoor meet, both inclusive.

T—For scoring 10 points in one season; for scoring 15 points in two seasons, provided not less than 7 points were scored during the second season.

Mod. T—For scoring less than 10, but not less than 5 points in one season, for scoring less than 5, but not less than 2 points in one season, and having previously won a BTHS.

II. BASEBALL

IV. SOCCER

BTHS—For taking part as a member of the team in at least two meets; for practicing regularly and faithfully.

Note: A gold championship emblem may be awarded on recommendation of the coach to any individual or to each member of a relay team winning a city, state or national championship. An athlete qualifying for such an emblem shall also receive a T. The Class A Race at the Penn Relays shall be considered a National Championship.

VI. CROSS-COUNTRY

T—For being a member of a team winning a borough championship or better; for taking 1st to 5th place inclusive in the city, state, or national championships; for taking 1st or 2nd place in the borough championships; running in two-thirds of the meets of the season, having previously won a Mod. T and having, to the satisfaction of the coach, done as good work as in the previous season; for scoring among the first ten in all the practice runs; or setting a lasting seasonal record or breaking a P. S. A. L. record.

Mod. T—For running as a team member in a majority (two-thirds) of the meets.

BTHS—For running as a team member in at least two meets; practicing regularly and faithfully.

VII. SWIMMING

T—For being a member of a team which wins a division championship or better; swimming in two-thirds of the meets, having previously won a Mod. T and having maintained or bettered the standard previously set.

For exceptional service like taking first place in every race in individual event or relay, having swum in not fewer than three-fourths of the P. S. A. L. meets; substituting in an event different from the one in which the candidate usually swims or in a relay, provided such substitution is for the good of the team, need not count against the candidate setting a lasting seasonal record or breaking a P. S. A. L. record; swimming well throughout the season and placing first or second in the city championships or meet of equal importance in which the candidate distinctly represents the school.

Mod. T—For swimming in at least two-thirds of the meets and placing at least third in half of them.

BTHS—For swimming in at least two meets; practicing regularly and faithfully.

VIII. GOLF

IX. HANDBALL

T—For being a member of a team which wins a division championship or better. For exceptional service, such as: winning every match played; setting a lasting seasonal record or breaking a P. S. A. L. record; winning the individual championship of Tech; playing in two-thirds of the matches having previously won a Mod. T, and having maintained or bettered the standard previously set.

Mod. T—For playing in at least two-thirds and winning at least half of all matches the team engages in.

BTHS—For playing in at least two matches as a member of the team, practicing regularly and faithfully.

X. TENNIS

The basis of awards for Tennis is the same as that for Golf and Handball except for the omission "setting a lasting seasonal record or breaking a P. S. A. L. record" under the T award.

XI. RIFLE

T—For being a member of a team which wins a division championship or better. For exceptional service, such as: taking first place in every meet; setting a lasting seasonal record or breaking a P. S. A. L. record; shooting in at least two-thirds of the meets, having previously won a Mod. T and having maintained or bettered the standard previously set; being a member of the team which wins the DuPont trophy or its equivalent; taking first place in the city championships.

Mod. T—For shooting in at least two-thirds of the matches team participates in, provided team wins half of said matches; being a member of a team which wins an important trophy shoot.

BTHS—For shooting in at least two matches; practicing regularly and faithfully.

XII. HOCKEY

T—For being a member of a team which wins a division championship or better; for playing in two-thirds of the games, having previously won a Mod. T and having, to the satisfaction of the coach, done as

good work as in the previous season. For exceptional service, such as winning every P. S. A. L. match played, having played in not fewer than three-quarters of them.

Mod. T—For playing in two-thirds of the games; for playing in more than half the games, having previously won a BTHS, and having, to the satisfaction of the coach, done as good work as in the previous season.

XIII. BOWLING

T—To those who bowl two-thirds of the games on a team that wins the borough championship, or who have previously won a Mod. T.

Mod. T—To those who bowl two-thirds of the games in a championship tournament, having previously won a BTHS.

BTHS—To those who practice in at least seventy-five percent of the tournament games and who maintain an average of 130.

Non-Athletic Activities—Honors

PRELIMINARY QUALIFICATIONS

All awards of honors for non-athletic activities shall be made upon a competitive basis to those who give the most satisfactory service. The recipient of any award must have been an active member of a club or organization for the term during which the award was made. A term shall consist of at least 15 weeks of service. Members may be judged poor, fair, or excellent in the following qualities of service: accuracy, courtesy, diligence, energy, initiative, integrity, leadership, orderliness, reliability, resourcefulness. Those who stand highest in these qualities are the most meritorious. To receive an honor a student must be a member of the G. O., and must have passed 16 hours of work at the end of the term for which the honor was granted.

Non-Athletic Activities of the school include Service Bureaus and Clubs grouped under the following classifications:

Class A—Those organizations whose distinctive purpose is to render special service to the school by assisting faculty members on assignment to patrol duty; by custodianship of school supplies and books; by clerical duties; by repairing property; by assuming duties and positions whereby they promote school spirit, thrift, or

economic purchase of personal supplies.

Class B—All clubs in which the competitive spirit leads to the development of teams which may engage in intrascholastic or interscholastic contests.

Class C—All other clubs whose primary aim is to aid the individual engaging in them. Such clubs may or may not render incidental service to the school.

The basis of awards in Class A groups is as follows:

The "BTHS" requires 1 term of satisfactory service.

The "Modified T" requires 2 terms of very satisfactory service.

The "T" requires 3 terms of exceptional service or in special cases 2 terms of very satisfactory service as an officer of the organization.

The basis of award in Class B groups:

The "BTHS" requires 1 term of membership and may be granted to those members of teams who have participated in a majority of interscholastic contests during the term.

The "Modified T" may be granted to members who have previously received a BTHS and who participate in a majority of interscholastic contests in a succeeding term.

The "T" may be awarded to those members who participate on a city championship team.

The basis of awards in Class C groups:

No awards shall be given to members of this group except for exceptional service to the school in which case the proper award shall be recommended by the Committee on Non-Athletic Honors.

In any one term the approximate distribution should be 15% "T's," 25% "Modified T's," and 35% "BTHS's." The aim is to avoid exceeding 75% of membership for all awards.

Honors will not be awarded in organizations, squads or clubs which have not been duly chartered. Clubs and organizations are not permitted to function unless provided with constitutions whereby they may become duly chartered.

The Non-Athletic Activities of the school are classified as follows: (Those *italicized* are inactive at present.)

Class A—Allied Arts Club; Band; Blueprint Squad; Book Room Squad; Chemistry Squad; Cut Slip Squad; Dance Orchestra; Dramatic Society; English Office Squad; General Organization Staff; Glee Club; Group Advisers Squad; Gymnasium Squad Leaders; Late Room Squad; Library Squad; Longfellows; Main Office Squad; Mathematics Office Squad; Math Student Staff; Orchestra; Physics Laboratory Squad; Print Shop; Ryerson Dramatic Society; Ryerson Glee Club; Ryerson Harmonica Club; Ryerson Service Squad; Survey Club; Sales Bureau; Science Bulletin Staff; Service Squad; Supply Room Squad; Survey Staff; Woodshop Office Squad.

Class B—Chess Club; Current Events Club; Dutch Dozen; Fife, Drum and Bugle Corps; Le Cercle Francais; Mathematics Club.

Class C—Aeronautical Society; *Architectural Club*; Art Metal Club; *Astronomy Club*; Book-of-the-Week Club; Camera Club; Cheer Leaders; Chemical Society; Civil Engineering Club; *Commercial Arts Club*; *Forge Club*; Harmonica Club; Mineralogy Club; *Pen and Transit Club*; Ryerson Chess Club; Ryerson Masquers; Ryerson Model Club; Ryerson Music Club; Ryerson Scouting Club; Stamp Club; Slide Rule Club; *Solderology Club*.

THE TECH CREED

This is your school. Make it the best school in the city. Did you come to help or to hinder? If you came to help, we want you. If you came to hinder, get out! Believe yourself a student in the best school in the city, in the best country in the world. A Tech man should be a hard fighter, a clean sportsman, a good winner, and a better loser. A Tech man should ask himself: "What am I here for?" Now and forever afterwards he should remember that T-E-C-H stands for: T—truth; E—earnestness; C—courage; H—honesty.

CLASS OF JUNE '24.

CHEERS AND SONGS

Tick Tock

Tick Tock Tack Tech
Bing Zip Smash Wreck
Brooklyn Brooklyn Brooklyn Tech
Team Team Team

Locomotive

Yeeeee Tech
T—T, E—E, C—C, H
Tech
T-E-C-H-N-I-C-A-L (slow)
T-E-C-H-N-I-C-A-L (faster)
T-E-C-H-N-I-C-A-L (very fast)
Tech Tech Tech

Booma-Lacka

Ticka Tocka Tacka Tech
Ticka Tocka Tacka Tech
Check 'em, Wreck 'em
Booma Lacka Chicka Check
Ro Ra Re Ra
Tech Tech Tech

Combination Yell

Section I—T-E-C-H
Section II—Yeeeee Tech
(Three times)

T-E-A-M (By Sections)

Section I—T-E-A-M, Yea Team
Section II—T-E-A-M, Yea Team
Section III—T-E-A-M, Yea Team
(All together—T-E-A-M, Yea Team)

Whistle Boom

Whistle (long)
Boom
Whistle (longer)
Boom Boom
Whistle (longest)
Tech
Team, Team, Team

Tech Cheering Song

Come on, ye loyal sons of Tech High,
Your colors wave in proud display.
Unfurl your banners to the sky,
For Tech is calling you today.

(Chorus)

Rise up and cheer, ye loyal sons of Tech High,
Rise up and cheer, your team is out to win.
Your banners fling up to the sky,
And fight, fight, fight, and ne'er give in.
Rah! Rah!
Rise up and cheer, ye loyal sons of Tech High,
The Blue and White must proudly fly.
Then give a Rah! Rah! Rah! and a Tick, Tock, Tech,
For victory and good old Brooklyn Tech.

—J. A. MATTUCK

Alma Mater Tech

(Tune—"The Bells of St. Mary's")

The gates of the future are opening wide,
And beckoning us who were safer inside,
The sheltering walls of our home and our school,
But changing and growing is youth's wholesome rule.

(Chorus)

The road lies before us, our spirits are high,
The race is the thing, and the goal appears nigh;
But backward we glance at the course we have sped,
To Alma Mater Tech, rejoice, our footsteps led.

With drawing board and test tube and transit we've
learned

There is no reward like the one we have earned.
From text book and lecture we've grasped the full
thought,

And nearer is looming the goal we have sought.

(Chorus)

Oh Tech, Alma Mater, though later we'll find
The trials, the treasures, the cruel and the kind,
Still staunch to protect us you're standing we know;
And with strength from you derived, we onward go!

—L. H. GREENBERG.

"Cheering, Cheering"

(Tune—"Sailing, Sailing")

Cheer on! Cheer on! Tech students all,
And rally to your high school's call,
O fling her praises to the sky,
Her spirit true shall never die.
For her you've worked and spent the hours so dear;
So now come on and give a rousing cheer.
Cheer for our high school and the colors, Blue and
White;

We will show how Brooklyn Tech can really fight.

(Chorus)

Cheering, cheering, our voices ring on high,
With Brooklyn Tech right in the fore, her banners in
the sky.
Cheering, cheering, our voices ring on high,
With Brooklyn Tech right in the fore, her banners in
the sky.

—HANS JANSEN

Tech Cheering Song

(Tune—"Song of the Vagabond")

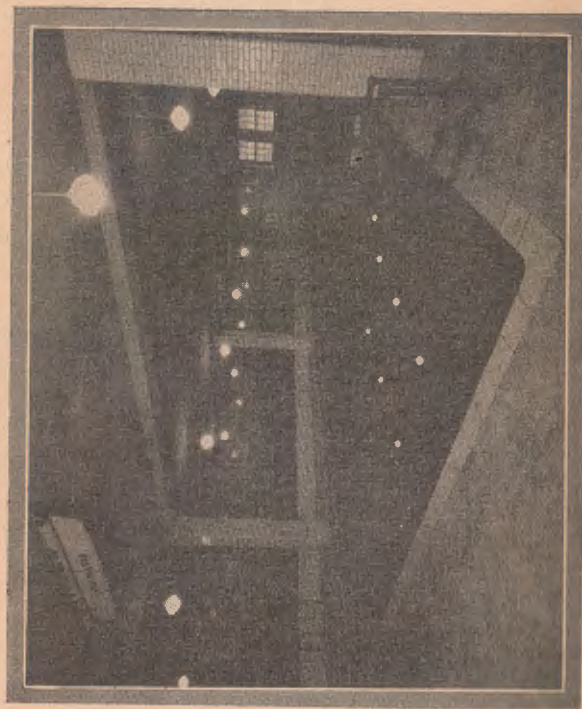
Sons of Tech and thunder,
Rip that line asunder,
And fight on for victory.
Hold that line before us,
When you hear a chorus
Shouting for a victory!
Onward! Onward! Fight with all your might!
Forward! Forward! It's for the Blue and White!
Come and show your spirit!
Let the whole world hear it!
And we'll get that victory!

—ALEX E. GOLDZMAN

Down, Down the Field

Down! Down! Down!
The field we are marching;
Try and stop us if you dare,
For before the game is played
You'll be routed and dismayed
And there won't be any

any more.
—A. SCHWARTZ



The Pool

ATHLETICS

To all Tech boys:

Thirty years of intimate contact with all forms of athletic games have convinced me beyond a doubt that they constitute the greatest contributing factor towards the development of fine character and useful citizenship in our educational system. Where in the school curriculum, is there as great emphasis on the development of leadership, fair play, courage, "never-say-die" spirit, cooperation, obedience to law and rule, as in our athletic games? Add to all these, the splendid training for a proper use of leisure and you have enough worthwhile reasons to make you want to try out for any team. Take advantage of these fine opportunities. Select any sport that you think you are physically fitted for and try out for it. Stick right to it even though it's hard. Don't become discouraged even when you do not seem to be improving. Keep right at it even though you think you haven't a chance. "Don't quit" and you are bound to succeed.

—IRA BLOOM

INTRAMURAL ATHLETICS

Director—MR. GOLDMAN

Intramural athletics can be defined as the organization of competitive athletics among the students or units within the school. Such a program is devised for the rank and file of boys who have neither the opportunity nor skill to make the varsity teams in the major sports.

The purpose of intramurals is to develop the student mentally, physically, socially, and healthfully, and also to absorb the interests and leisure time of students in a pleasant and wholesome occupation.

The Intramural program is administered by a director and three student managers who instruct class managers in organizing the classes for the different sports.

Classes organize their teams and send in entry blanks to the director. He in turn arranges a schedule and sends notices of play to the classes. The notices contain time, date, and place. The calendar is arranged

so that the intramural sports do not conflict with the varsity sports:

Fall Season: Tennis, handball, basketball, football and punchball, in addition to a new sport—badminton.

Spring Season: Hockey, baseball, punchball, handball, and paddle tennis.

Other sports will be added as the program of the school develops.

An intramural sports club has been organized and meets every two weeks. The objectives of the club are as follows:

1. To sponsor and conduct as many intramural sports as are consistent with the department of extramurals.

2. To educate in methods of playing and officiating in various sports.

3. To instill sportsmanship and spirit of fair play in all interscholastic and intramural sports among players and spectators.

The membership of the club consists of all managers and officials taking part in the intramural program.

BASEBALL

Coach—MR. WAGNER

Baseball continues to be one of the most popular sports in Tech as is shown by the fact that there were 350 candidates for the 1936 teams. The Easter vacation gives the coach an opportunity to look over the material. Those who survive the cut are classified into three groups: A, the first team; B, the second team; and C, the third team. The C group is made up of boys below the fifth grade only. The first team plays an interscholastic schedule of eighteen games. The B and C groups play against each other.

The purpose of retaining so many players throughout the season is to offer as large a number as possible the benefits of the exercise out of doors, and to obtain a strong reserve of veterans for future seasons.

If baseball is to be your sport, it is well to start early in your high school career. Remember that it takes three seasons to earn the highest award the G. O. gives. All you need to do to qualify is to have your marks and report to the gymnasium when the call for candidates comes.

SWIMMING

Coach—MR. GOLDBERG

The P. S. A. L. swimming season comes in the fall term with a series of weekly dual meets lasting from October to December, with the City Championships in January.

The team is composed of twenty men, two taking part in each of the following events:

50-yard freestyle, 100-yard freestyle, 75-yard breast-stroke, 220-yard freestyle, 50-yard backstroke, and fancy dive.

In each of these events the first man scores 5 points, the second 3, and the third 1. There are also two four-man 200-yard relays, the scoring being 8 points for first place, 5 points for second and 3 for third, and 1 for fourth. Thus the total number of points scored in a meet is 71, and the greatest number that can be scored by one team is 61.

The best swimmers from the New York High Schools are entered in the City Championships held in January. First, second, third, and fourth places score 5, 3, 2, and 1 points respectively. The team compiling the highest score is awarded the Kammerer Trophy which it holds for one year.

In June the Long Island Championships are held at Jones Beach. The method of scoring is the same as that used in the City Championships, the winning school receiving the Townsend Scudder Cup which it holds for one year.

Swimming has always enjoyed a fair measure of success, the most outstanding season being 1930 when Tech won both the Kammerer Trophy and the Townsend Scudder Cup.

Those interested in swimming should read the *Survey*, listen for calls for candidates, or get in touch with the coach.

TENNIS

Coach—MR. LEVINE

The tennis team for the season of 1936 enjoyed the best season it has had for several years. During the fall term the candidates for tennis held an informal series of matches in an attempt to find new material and at the same time to keep the sport alive the year round. Through these matches many good players were discovered and the competitive spirit of the team was greatly enhanced. The team won the first six matches in the City Championship schedule and finished higher among the schools of the Greater City than the past five teams representing the school.

As we are always in need of new material, it is the earnest wish of the coach that anyone having had experience in tennis report when the call for candidates is made.

HOCKEY

Coach—MR. BOYD

The Brooklyn Tech ice hockey team has been an active organization for the past seven years. During this time it gained possession of the Hamilton Trophy. It was necessary to win the P. S. A. L. Championship three times to keep the trophy. Since hockey is one of the major sports at Tech, large numbers turn out for the squad. Early in October the try-outs are held in the gymnasium and there the boys learn the various phases of the game. About the middle of November the boys "see ice" and then the best skaters and stick-handlers are selected for the squad. In previous years each team met every other team in the league for one game, but this year each team will play every other team in the league two games.

Last season the team competed in the Metropolitan league as well as the Public School league. The boys practice one morning a week from seven to eight o'clock and one afternoon in the gymnasium. Ice hockey is one of our fastest games and participating in it will teach the value of team work, superb condition, clear and fast thinking, and cooperation at all times.

TRACK

Coach—MR. WAGNER

The track team for the season of 1935-36 created the greatest track record in the history of the school. It was victorious in all dual meets and set up an all time record in the one-mile relays, winning the Seton Hall, La Salle, N. Y. U., Manhattan, and Endicott-Johnson mile relay events. The same team placed third in the National one-mile relay event at the Knights of Columbus meet. The team concluded the season by winning the City Championship. This team set a new record for Tech by winning the Brooklyn and Queens Championship meet and the City Championship one mile relay for the first time.

CROSS-COUNTRY

Coach—MR. WAGNER

The cross-country team started its season with the loss of its outstanding star, Charles Southard, who graduated and entered Syracuse University. Although the squad was the largest in many years it was unable to show championship form and failed to win the Brooklyn P. S. A. L. championship for the first time in nine years. However the training the boys received proved to be a great factor in developing several of the City's best quarter milers. This was shown by their success in the Indoor and Outdoor track season.

RIFLE

Coach—MR. LA VISTA

The rifle team has been shooting so well that in the last two terms they have lost only one match out of twenty-five. In the fall term of 1936 the team won the Stock Exchange trophy against a field of twelve other High Schools. Arthur Jackson of Tech won the High Individual medal.

In a match with Jamaica the team scored 1088 out of a possible 1200. This score is the highest ever made by any Tech Rifle Team. It is unfortunate for the team that the P. S. A. L. did not hold a rifle competition for 1935 and 1936 as the Tech team had an excellent chance of taking the title.

BASKETBALL

Coach—MR. GRUMMOND

Facing the second half of the 1936-37 season the Tech basketballers find themselves leading their division in the Public School Athletic League. The team now boasts of six wins in league competition while losing only one game to Thomas Jefferson. The replacement of three star players, Cholewinski, Burks, and Carey, due to graduation, will be a difficult task. If the reserves, Curley, Meyer, and Garfinkel can work smoothly with the three remaining veterans, Wagner, McKinney, and Peterson, Tech should experience its best season on the court in the history of the school.

Basketball has become one of the most popular sports in Tech. Besides the varsity squad, a junior varsity squad and a freshman squad have also been maintained. The fact that 200 boys answered the call for candidates, plus the fact that attendance at all games has greatly increased, indicates the keen interest recently developed in the dribble-dodge game by the student body.

GOLF

Coach—MR. MACANDREW

In February, when snow and ice cover the streets, thirty or forty Technites may be seen in the upper gymnasium swinging golf clubs and limbering up for the coming of Spring. Golf became a Tech sport in 1928. Since that time Tech golfers, many recruited from the caddy ranks, have proved their ability in many close, hard-fought matches. Twice a single point has cost us a championship, once the unofficial Brooklyn title. Prospects for 1937 are not very promising. Capt. Keskeny, Kubik, Corso, Von Bergen, and Friedman form the nucleus of a small squad left from 1935. New material is urgently needed. Any student who owns golf clubs and is interested in the sport is cordially invited to join the squad and improve his game.

BOWLING

Coach—MR. WAGNER

The bowling team organized in 1933 is still one of the few high school organizations of its kind in the Greater City. Since the organization of this sport in Tech a greater popularity for the sport has been noticed. At present sixty candidates are trying for the team.

Brooklyn Tech captured the first scholastic bowling championship in high school history. In the deciding game Tech whipped Manual 855 to 738, after the latter had defeated Madison by 121 pins. Tech was awarded the A. C. Lattin trophy. Another record for Tech was won when Grenzig, Felimi and Partenfelder won medals in the *World-Telegram* Head Pin Tournament. This was the first time that High School boys had bowled in this tournament. The members of the team are selected from the ten high average bowlers of a trial tournament. Any student below the Eighth Grade may qualify providing he is a G. O. member and meets the scholastic requirements of the school. This is a sport you can engage in after leaving school, and aside from its physical benefits it develops good fellowship, good sportsmanship in clean and friendly competition. If other High Schools would stimulate interest and respond more quickly, it would be possible to have a Greater City Championship.

P. S. A. L. ELIGIBILITY RULES

A high school pupil who is not maintaining a grade of scholarship which will entitle him to promotion (if continued without improvement) may be declared ineligible to represent his school in athletics. Declaration of ineligibility on this ground shall issue from the Principal of said boy's school.

A boy under penalty of discipline in his school may be declared ineligible to represent such school. Declaration of ineligibility on this ground shall issue from the Principal of said boy's school.

No boy shall be eligible to represent his school in athletics who has not placed to his credit sixteen hours

of prepared work at the final marking period of the term previous to his season of competition. The marking date shall be interpreted to be the day set by the Principal of the school by which all marks for all boys of the school shall have been entered on the official record of the school to determine all boys' standings. A boy must maintain at least eleven hours of work during the term in which he is competing on a team for the school. If a boy takes regular school work during the summer, his mark, if a passing one, shall be entered as the mark for the previous June. No course taken outside school hours shall be counted for credit.

No high school boy who has reached the age of twenty-one shall be eligible to represent his school in any branch of athletics.

No student may represent other organizations besides his school in track and field athletics during the school year. The P. S. A. L. ruling prohibits any boy from representing his school in a certain sport and representing an outside organization in the same sport during the same season. An exception for baseball is made by the P. S. A. L. For a violation of this rule, the offender shall be suspended for a period to be determined by the Committee and his school shall forfeit the points won.

No boy who has bet or has acted as agent for others in betting on athletic contests shall be eligible to represent a high school for one year from date of the occurrence of the act.

The same rules apply to second and other teams competing in interscholastic athletics as to first teams.

Eligibility for intrascholastic athletics shall be determined by the Principal of the school.

A medical certificate of the satisfactory physical condition of a boy is required in all sports. Such a certificate is good for one year. A parent's permit slip must be handed to the coach before a boy is allowed to take part in any form of athletics.

When a boy has been discharged from a high school for disciplinary reasons in accordance with rules of the Board of Education, he may not represent other high schools.

CLUBS AND SQUADS

ALLIED ARTS CLUB

Faculty Adviser—MRS. TORNING

This club offers opportunities to students whose interest or talent finds insufficient scope within the prescribed curriculum. It consists of two groups, the Marionette Group, and the Poster Group.

A—The Marionette Group

The Marionette Group is producing a number of plays to be presented to the school. Students who are interested in the art of the theatre and enjoy designing, constructing, painting, modeling, carving, and other crafts, and who have completed at least one year of Freehand Drawing and one year of Shop, are eligible to join this group. Amateur electricians, tailors, carpenters, property men, dancers, singers, and students who have good speaking voices as well as deft fingers, are needed to carry out the extensive program outlined for the miniature theatre and players.

B—The Poster Group

Faculty Adviser—MISS GRIFFEN

The members of the Poster Group endeavor to meet the demands for posters by the various school enterprises. They also design programs and posters for the Marionette Group. Particular attention is being given to color, composition, and design in the mediums of pencil, ink, charcoal, water-colors and tempera. The Poster Group is open to all students of Tech.

BOOK-OF-THE-WEEK CLUB

Faculty Adviser—MR. E. BLOOM

The Book-of-the-Week Club aims to make reading a hobby. At the weekly meetings members talk over their reading interests, especially their favorite books or authors.

JUNIOR BOOK CLUB

Faculty Adviser—MISS BOOKMAN

The Junior Book Club aims to help students who like to read find greater pleasure in reading through inter-

esting discussions of popular books and authors. Membership is open to students in grades one to four.

CHEMISTRY SOCIETY

Faculty Adviser—MR. MARCUS

This club gives boys who are interested in chemistry an opportunity to share their interest with other students, and to receive encouragement and advice in the pursuit of chemistry as a hobby. Weekly demonstration lectures are given by the members.

THE CHESS CLUB.

Faculty Adviser—MR. AUSTIN

Though established only one and one-half years, the Chess Club has matured rapidly. It was organized to stimulate interest in the pastime of the ancients. It has at present a membership of forty, and its property has increased to twenty-four sets of men. A team of four players represents the club in the interscholastic contests held weekly. A few more experienced players are in demand for these matches.

The club assembles Thursdays in the northeast corner of the Boys' lunch room. There the members concentrate on the study of standard openings of the chess masters and vie with each other in the skillful strategy the game requires. All boys interested are welcome.

CIVIL ENGINEERING CLUB

Faculty Adviser—MR. ORTHEY

The Civil Engineering Club aims to assist the Structural student in his comprehension of engineering life and his place in it.

Meetings are devoted to the following activities:

1. Presentation of topics by the members on such subjects as bridges, highways, buildings, special surveys, etc.

2. Discussions of application of work of class subjects, field and office practice, local engineering projects, design problems, types of jobs available and how to get one, Civil Service questions, current engineering works and practices, etc.

3. Talks by teachers and visitors on special subjects of interest to a Structural group.

4. Trips to points and projects of engineering interest.

5. Arrangement for and advice on educational advancement and the effect on business success in engineering.

6. Spare time activities and hobbies. This includes vacation trips as well.

Membership is open to Structural students registered in Grades V to VIII. Meetings are held in the prefect room of the faculty adviser on Wednesday afternoons.

CURRENT EVENTS CLUB

Faculty Adviser—MR. LEVINE

The Current Events Club strives primarily to foster an interest in current periodicals and newspapers by topics which are of interest to students. Informal short talks by members of the faculty and students based on the events of the week are followed by club consideration of the ideas presented. A team is usually entered in the annual *Eagle* Current Events Bee.

DRAMATIC SOCIETY

Faculty Advisers—MISS PEABODY, MISS STRONG

The aims of the Dramatic Society are to develop ability in acting and to arouse interest in the staging of plays. Since its organization the society has produced, among other plays, Dickens' *Christmas Carol*, *The Drums of Oude*, *The Killer*, *The Cobbler's Den*, *Outclassed*, *In the Zone*, *The King's English*, *The Night at an Inn*, and *The Ghost Story*.

DUTCH DOZEN

Faculty Advisers—MR. RADENHAUSEN, MR. BERMAN

Meetings are held on first Wednesday of the month and third Thursday thereafter in Room 6S8. The club consists of a real German Dozen—twelve plus officers.

Once a year, the club publishes a magazine in Ger-

man, the *Scheinwerfer*. Last year, Captain H. Eckner, forwarded a picture of the Hindenburg with his signature as a special feature.

Meetings are carried on in German and English. Occasionally the club takes a trip to a German boat or museum or enjoys a Kaffee Klatsch.

GLEE CLUB

Director—MR. MATTUCK

The Glee Club meets Fridays at 3:15 in 2C3. Boys who enjoy choral singing and whose voices have already changed, are urged to join. Voice trials are held at the beginning of each term.

INSTRUMENTAL MUSICAL ORGANIZATIONS

Director—MR. BARDONSKY

The chief purpose of the various musical groups of Tech is to render service to the school whenever required. The organizations prepare themselves to provide suitable music for school occasions whether these be athletic games, graduations, or radio broadcasts.

In order to meet the musical needs of Tech which has so many activities in progress, five distinctly different types of organizations are in operation. One of the most important of these is the Orchestra which is built on symphonic proportions and boasts of complete instrumentation in all its sections. The Orchestra plays at assembly programs and at other school functions.

The Band plays at the baseball and hockey games and occasionally provides music at school concerts and Parents Association meetings.

The Dance Orchestra is a select body of musicians which assists at school shows and productions. This organization gives excellent training to students desiring knowledge and experience in dance music.

The Pife, Drum and Bugle Corps and the Harmonica Club are organized for those who enjoy these specialized forms of music.

The equipment which the Musical Organizations now has, includes most of the lesser known instruments of

the band and orchestra, especially those which the students are not likely to possess. The inventory of these instruments to date includes the following:

1. Woodwinds—Flute, oboe and bassoon.
2. Brass—Baritone, tenor horn, three French horns, a trombone and four tubas.
3. Strings—Two violas, three violincelli and two string basses.
4. Percussion—Tympani, bass drum and a complete battery.

These instruments are available for beginning students during the school day and for the Musical Organizations during the ninth and tenth periods, which is their rehearsal time.

New members are always needed to fill the vacancies which exist each term and no student should hesitate to try out for any Musical Organization in which he is interested.

LE CERCLE FRANCAIS

Faculty Adviser—MR. TRON

Le but du Cercle Français est d'offrir aux élèves intéressés, une connaissance plus approfondie de la langue, des mœurs de la civilisation françaises.

Les réunions ont lieu tous les quinze Jours, le mercredi, dans la salle 5E16, et se conduisent autant que possible, en français. On y discute divers sujets: les nouvelles importantes sur la littérature, les beaux-arts, la science, le cinéma, etc. Tous les membres sont invités à participer aux discussions.

Pour faire partie du Cercle Français, il suffit d'avoir complété une année et demie de français ou d'avoir une connaissance suffisante de la langue.

THE LONGFELLOWS

Faculty Adviser—MR. McHUGH

Not poetic ability, but height, and at least six feet of it, is the requirement for membership. The symbol of the club is the "big six." Because of the heights to which they ascend, the honor of ushering at all school functions has been delegated to the Longfellows.

PUBLIC SPEAKING SOCIETY

Faculty Adviser—MR. BROKHAHNE

The aim of the Public Speaking Society is to develop effective speech. This is accomplished by the acquisition of stage presence, facility of expression, and rational thinking. These objectives are attained by means of personal voice diagnosis, remedial drills, and speech practice.

The members of the society find endless opportunities for wide experience in rendering service to the various activities and enterprises of the school. Club talks, G. O. campaigns, school canvassing, oratorical contests, and microphone technic suggest some of the diversified possibilities offered to members of the society.

SCRIBES

Faculty Adviser—MR. KATZ

If you think, or know that you can write a short story, a poem, or any type of article or essay, and if you enjoy writing, you should join the Scribes. This organization meets weekly in Room 5E8. The requirements for membership are 75% in English for the term preceding application for membership and an original contribution acceptable to the members.

THE SLIDE RULE CLUB

Faculty Adviser—MR. LIPSCHITZ

The Slide Rule Club was organized to make the students of Tech conscious of the possibilities of the slide rule in connection with their work at Tech. All students are invited to come to the meetings which are held on alternate Thursdays.

STAMP CLUB

Faculty Adviser—MR. SANDHUSEN

The Stamp Club at Tech attempts to bring together those interested in the collection of stamps, to exchange not only stamps but interests and ideas as well. Meetings are enlivened by contests, talks by members and by philatelists of note, occasional stamp auctions, and the inevitable "swapping." All stamp collectors are cordially invited to Room 5W22, Thursdays, at 3:15.

THE BOOK ROOM SQUAD

Faculty Adviser—MR. DRISCOLL

The activities of this squad include the filing of book cards and the stamping of books. On them also falls the heavy work of issuing and receiving books at the beginning and end of the term. Only boys of exceptional scholarship and character are accepted on the squad. Honors, including a BTHS, Mod. T, or T, are given for service on the squad.

ENGLISH OFFICE SQUAD

"Efficiency, Orderliness, Service"

Faculty Adviser—MISS COLEMAN

In accordance with the motto of the English Office Squad, members must be boys who excel in neatness, courtesy, and responsibility.

Activities of the squad include service in the English Office throughout the day and revision of the picture file of illustrative material. The squad also has charge of the circulation of the *Survey* and the *Blueprint*.

THE GENERAL ORGANIZATION STAFF

Faculty Adviser—MR. MILDE

The General Organization Staff was chartered by the Executive Committee to assist Mr. Milde in the details of administering the General Organization. This staff has the combined work of the G. O. Treasurer's Staff plus the extra work of the Intramural Squad. The boys on this Staff distribute the G. O. cards, keep a check on the number of classes in each grade, list and file the names of each class, set up the work for the elections, list and file the names of each squad and team in the school, prepare schedules and handle the running of the intramural games, list and file parent's permit slips and non-fraternity pledges, and in cooperation with the Public Speaking Society deliver a G. O.-*Survey* sales talk in the prefect rooms. These boys are also responsible for the sale of all tickets for school games, and they help to investigate the G. O. memberships of students participating in any of the extra-curricular activities.

GROUP ADVISERS' OFFICE SQUAD

Faculty Adviser—MR. BRACKETT

Students on this squad must be active, intelligent, and accurate. Their duties include delivering messages, checking daily absence sheets, making out cut slips, and answering the telephone. The awards earned are those provided in the by-laws for non-athletic activities.

LIBRARY SQUAD

Faculty Adviser—MR. JONES

The duties of the Library Squad include the charging of outgoing books, the receipt and shelving of returned books, the "reading" of the shelves to detect misplaced books, guard service at the door, and check room service. New books, when received, are pasted and lettered by members of the squad.

The Library Squad is selected from volunteers who seem to be particularly qualified, and who have passing marks in sixteen hours of school subjects.

MAIN OFFICE SQUAD

Faculty Adviser—MRS. KOCH

The conditions of membership are as follows: The student must bring a recommendation from his teacher, based upon character and scholarship.

The members are trained in office practice, use of switchboard, filing, mimeograph work, handling of the mail, and typewriting.

SERVICE SQUAD

Faculty Adviser—MR. LEDLEY

The Service Squad, consisting of over four hundred students, serves Tech every school day by maintaining safe and orderly traffic in the building, on the sidewalks, and at street crossings.

Members are selected from the entire student body from freshmen to seniors on the basis of alertness, in-

telligence, and scholarship. The officers, consisting of a Captain, Secretary, Treasurer, 2 Inspectors, 15 First Lieutenants, and approximately 35 Junior Lieutenants, are appointed on the basis of (1) leadership, (2) scholarship, and (3) number of terms of service. Junior Lieutenants, appointed for the first time, must have the endorsement of three teachers in addition to other requirements.

Each period of the day is supervised by a First Lieutenant who may have assisting him as many as four or five Junior Lieutenants in charge of squads in various parts of the building.

Honors are awarded after two terms of satisfactory service, provided that the candidate has passed sixteen points of school work; and, also during the term for outstanding scholarship and achievement.

SQUAD LEADERS' CLUB

Faculty Adviser—MR. PRESTOPINO

"Go ye and make the weak strong"

The aims of the Squad Leaders Club are three fold:

1. To aid the student in his understanding and performance of apparatus work.
2. To foster leadership among its members.
3. To instill the proper attitudes and habits of health in connection with gymnasium work.

Membership is open to all students interested in apparatus work. Meetings are held each Monday afternoon in the gymnasium.

BTHS STYLE BOOK

1.—Manuscript

Margin and Indentation

Leave a margin of one inch at the left of the paper. Indent each paragraph one-half inch beyond the margin.

Heading

On the first line of each sheet of paper place the following heading maintaining the margin indicated above:

Feb. 1, 1937 E111 - John Jones, A11

The Composition or Answer

Skip a line after the heading before beginning to write a composition or an answer to an examination question.

Penmanship

Write in a clear legible hand. Do not crowd words closely together. Dot your i's and cross your t's simply and accurately. Do not let the loops of f's, j's, p's, and y's in any line descend below the general level of the loops of b's, f's, k's, and l's in the line below. The reader will have little respect for your ideas if your handwriting is illegible.

Dividing Words

In dividing a word at the end of a line, make the separation between syllables, not elsewhere. When in doubt as to the proper division of a word, consult the dictionary.

Corrections

If you wish to correct the spelling of a word or to substitute a word for one you have used, draw a single neat line through the word to be changed and write the correct word above it. Draw a single neat line through words or expressions that you wish omitted. If you wish to cancel a section of a paper, draw diagonals across the section and mark it *Omit*.

Turning the Paper

Turn your paper as you would the leaves of a book, unless there is a printed margin which should invariably be kept at the left.

Abbreviations

In ordinary writing avoid abbreviations. The following, however, are always correct: Mr., Mrs., Dr., St. (Saint—before proper nouns), and No. or \$ when followed by numerals. In technical writing, use standard abbreviations in routine matter-of-fact reports, in laboratory reports, and in printed instructions. Consult the list of standard abbreviations in the dictionary or in technical texts for correct forms.

The symbol & is used in the names of many firms.

In other uses, in ordinary reading matter, *and* is written out.

Use of Figures

In ordinary writing use figures for dates, for street numbers in addresses, for references to the pages of a book, for athletic scores, and for numbers which can not be expressed in a few words. In technical writing use figures to express dimensions, weights, distances, dates, degrees of angle or temperature, and other exact numerical data. Never begin a sentence with figures.

Titles of Books and Chapters

The title of a book and the name of a newspaper or a magazine should be underlined. (In writing, underlining is equivalent to the use of *italics* in printing.) Titles of chapters and of individual essays or poems in anthologies should be enclosed in quotation marks.

Example: "The Man With the Hoe" in Modern American and British Poetry.

Columns

When work is to be done in tabular form, arrange it neatly. Rule the lines for the columns. Keep straight margins within the columns.

II.—Capitals

A. Begin every sentence with a capital letter.

B. Begin with a capital letter all proper nouns and proper adjectives. Words not so used should not begin with capitals.

C. In the titles of books, chapters, or themes, capitalize the first word and all other important words.

Examples: the Principal of the Brooklyn Technical High School, a high school, carbon monoxide, CO, chem-

istry (capitalize when used as the name of a special course, as Industrial Chemistry), Bessemer steel, open-hearth process, English, German, Wednesday, watt, Bunsen burner, geometry, Bible, Civil War, *The Romance of Steel* (title).

III.—Punctuation

The purpose of punctuation is to make the meaning of the sentence *instantly* clear.

A. Terminal punctuation:

1. A period is used after a complete declarative or imperative sentence.
2. A question mark is used after a direct question.
3. An exclamation point is used after words, expressions, or sentences to show strong emotion.

B. Internal punctuation:

1. Minor marks

- a. The comma is used to separate words or phrases in a series or a larger from a smaller unit, to set off a word in apposition or a parenthetical word or statement, and to indicate a pause where necessary for clearness.

Examples:

- (1) In parts of Spain, Italy, and France, as well as in some other European countries, charcoal is still the main source of fuel for domestic use.
- (2) The properties of these cements, coming from different localities, vary greatly.
- (3) Ever since, he has devoted himself to athletics.
- (4) On September 12, 1908, at Fort Meyer, Virginia, occurred one of the notable triumphs in the history of aviation.

- b. Parentheses are used to enclose explanatory material or a side-remark that does not affect the structure of the sentence.

Examples:

- (1) The three altitudes of a triangle (produced if necessary) meet in a point.
- (2) In addition to the regular ingredients, a considerable percentage of cullet (old glass, or waste glass from former melts) can be used in nearly all batches.

- c. The dash may be used in place of parentheses where informality is desired. A dash should not be used as a substitute for other marks of punctuation.

Example:

The fellow actually—of course this is between you and me—stole money from his father.

- d. Quotation marks should be used to enclose a direct but not an indirect quotation. A quotation of several paragraphs should have quotation marks at the beginning of each paragraph and at the end of the last paragraph.

Examples:

- (1) He asked, "Where are you going?" (Direct quotation)
- (2) He asked where I was going. (Indirect quotation)

- e. The hyphen is used to divide a word at the end of a line, to join certain compound words and parts of fractions written in words, and to separate a prefix that would be awkward if written as part of a single word.

Examples:

One-half, three-fourths, air-tight, so-called, non-conductor, four-cylinder engine, twenty-three.

- f. The apostrophe is used in forming the possessive of nouns but not of personal pronouns. It is also used to indicate the omission of a letter in colloquial contractions, and to form the plural of letters of the alphabet and of figures.

Examples:

- (1) Contractions: don't, it's (it is), haven't, they're.
- (2) Possessives: its, theirs, ours, a boys' club, a boy's hat, men's shoes, ladies' hats, Dickens' novels, Burns' poems, Helmholtz's experiments.
- (3) Plurals of letters and symbols: Cross your t's and dot your i's. Make 7's and 3's more distinct.

2. Major marks:

- a. The semicolon is used to indicate the major divisions of a balanced sentence, or to separate long clauses that contain commas. It is an unusual mark of punctuation in ordinary writing but very useful in separating major divisions of technical specifications.

Examples:

- (1) As the voltage increases, larger and larger numbers of the electrons move over to the plate; that is, the current increases.
 - (2) He was not simply negligent; he was guilty of criminal carelessness.
 - (3) Wire nails, \$1.85, base; plain wire, \$1.55; galvanized barb wire, \$2.15.
- b. The colon is used to introduce illustrations of a general statement, a formal list or statement, or a question. It is also used after the salutation of a formal letter.

Examples:

- (1) There are three general kinds of lime: quicklime, hydrated lime, and hydraulic lime.
- (2) The following apparatus was used:
- (3) The difficulty is this: Where is the money to come from?
- (4) Dear Sir:

Some Practical Hints About Punctuation

The following may help some students to master the BASE of punctuation:

Balance ;
Anticipation :
Separation ,
Emphasis —

The *Stop! Look! Listen!* sign of the railroad crossing also has its application to punctuation.

The period means *Stop*.

The exclamation point means *Look*.

The question mark means *Listen*.

IV.—Definitions

To define means to fix or to explain the meaning of a word or term. Words are usually defined by synonyms familiar to the reader, but terms (words or expressions used in a definite sense, particularly technical terms) must be explained through a logical definition. The logical definition of a term should include two parts: the name of the class to which the term belongs, and the qualities that distinguish it from other members of that class.

Example: A quadrilateral is a plane figure (class) having four sides and four angles (distinguishing qualities).

Do not define a term by saying it is a "when" or a "where."

V.—Outlines

The most common form of outline is topical. The headings (nouns or phrases containing nouns) indicate the important ideas in a composition and their relation to each other. A practical combination of the topical and sentence outline is exemplified by Section III of this *Style Book*. The following system of numbering and lettering is used in all outlining:

I.

A.
B.

II.

A.

1.
2.
3.

B.

1.

a.
b.

2.

a.
b.
c.

III.

A.
B.

VI.—Letters

The parts of the letter are the heading, the inside address, the greeting, the body, the complimentary close, and the signature. For these parts good use prescribes definite forms, which must be observed in formal or business letters.

There are two correct styles of punctuation of the letter form: the open and the closed. There are two correct styles of arrangement: the slanting and the block. In the Brooklyn Technical High School we use the open block form.

FORM FOR BUSINESS PURPOSES

1011 East 19th Street
Brooklyn, New York
February 1, 1937

R. H. Macy & Company
Broadway and 34th Street
New York City
Gentlemen:

Yours truly,
John Jones

FORM FOR SOCIAL PURPOSES

125 Fifth Avenue
Brooklyn, New York
February 1, 1937

Dear Jack,

Your friend,
Jim

N. B.: *Very truly yours* may also be used as a complimentary close to a business letter. A letter addressed to a superior (an employer, a teacher, group adviser, or a principal) should end with the complimentary close *Respectfully yours*.

Sincerely yours may be used as the complimentary close of a semi-formal letter, or one addressed to a superior with whom you are on friendly and intimate terms.

BTHS MINIMUM ESSENTIALS OF GRAMMAR

(The incorrect form is enclosed in parentheses.)

I.—Agreement of Verb with Subject

There (is) are two coats in the wardrobe.

There (is) are several old notebooks in the drawer.

There (was) were ten points due me.

There (has) have been many lives lost in Antarctic expeditions.

Two dollars (is) (are) too much to pay for that hat.

The grocer's bill and the money (was) were on the table.

Neither the money nor the grocer's bill (was) (were) on the table.

Neither the pattern nor the castings (was) were in the foundry.

The swimming, boating, and fishing (is) are good.

He (don't) doesn't care whether we leave or not.

It (don't) doesn't matter.

We (was) were late today. (Was) Were you late, too?

A series of lectures (was) (were) given by the boys in our club.

In spite of all obstacles, the construction of the three hundred trestles and twenty scaffolds (was) (were) completed.

Each of my friends (has) (have) his (their) own car. Sodium hydroxide and hydrochloric acid (yield) (yields) water and sodium chloride.

One and one (equal) (equals) two.

One plus one (equal) (equals) two.

II.—Agreement of Pronoun and Antecedent

Everybody did his (their) best.

Everyone knows that he (they) should do his (their) own homework.

Some one seems to have left his (their) umbrella.

No one likes to admit he (they) is (are) wrong.

The man who (which) spoke to me was very courteous.

III.—Correct Use of Demonstrative Adjectives

I do not like that (them, these) kind of apples.
Give me this (these, them) kind of potatoes.
Give me (them) those nails.

IV.—Correct Use of Adjectives and Adverbs

The machine runs (good) well.
He (sure) surely does (good) well in all his classes.
The cake looks good (well).
This chemical acts (quicker) more quickly than that.
He looks well (good) today.
The cake tastes good (well).

V.—Correct Use of Cases of Pronouns

Nominative

I can fix that brake as well as he (him).
It was he (him).
He never discovered who (whom) his enemy was.
He is brighter than she (her).

Objective

Between you and (I) me, I'm hungry.
That seems strange to you and (I) me.
I know (who) whom you mean.
They like John better than him (he).

Possessive

There is no sense in (me) my waiting.
The dog hurt (it's) its foot.
That is (our's, ours') ours.
Changes are made without (me) my (us) our having
a record of them.

VI. Correct Use of Troublesome Verbs

I found it lying (laying) on the table.
He must have (laid) lain there all morning.
Let (Leave) it lie (lay) where you found it.
I saw (seen) it myself.
He did (done) his work quickly.
I have (broke, busted) broken my pen.
He has gone (went) to the office.
He (come) came to the city ten years ago.

If he (would have) had studied, he would have passed.

Shall (Will) I (bring) take that pen to the office?
Please may (can) I fill my pen?

VII.—Miscellaneous

This book is different (than) from that.
He works (like) as if he (was) were afraid of the machine.

(This here) This job is done.
That (That there) job is not done.
He (ain't) isn't ready.

(I ain't goin') I'm not going.
I haven't (no) any pen.

We need a five-foot (feet) pole and this one is only four (foot) feet long.

(Being as, Being that) Since I do not expect to go to the game, you may use my ticket.

He was (sort of) rather tired.

He was an (adventurous like) adventurous fellow.

(Long John Silver, he) Long John Silver had only one leg.

Jimmy Hawkins (started to take) took Ben Gunn's boat.

John (met up with) met some interesting people.

After his leg was broken Harry (stood) stayed in the hospital for a month.

He decided to try (and pass) to pass English.

He is (liable) likely to go.

He started (running) to run.

It began (started) to rain.

We (bet) beat Manual.

(Less) Fewer boys came than we expected.

A large (amount) number of boys attended the game.

BTHS VOCABULARY

WORD STUDY

Common Roots

The root is the basic part of a word, the part which expresses its essential or primary meaning.

AG, ACT, IG (act, do, carry on, drive): transact, agile, navigate, agent, ambiguous, actor, exact, reagent.

CEDE, CEED, CESS (go): antecedent, precedent, concede, succeed, procession, ancestor.

CEIVE, CERT, CEPT, CIP, CAP(t) (take): participate, perceive, deceive, capable, reception, anticipate, capture.

CUR, COURSE (run): current, occurrence, excursion, curriculum, discourse.

DIC, DICT (say): dictionary, indicative, indict, valedictory, prediction, verdict, contradiction, dictate.

DUCE, DUCT (lead): education, induction, aqueduct, product, deduction, reduce, introduce, conductor, produce.

FACT, FIC(E), FY, FECT, FEAT, FEIT (make, do): faculty, versification, factory, manufacture, significant, justify, feature, counterfeit, amplify.

FER (bear, carry): ferry, indifferent, transfer.

JECT (throw): project, projection, objection, objective, eject, reject, subject.

JUNCT (join): junction, conjunction, injunction, juncture.

LEG, LECT, LIG (read, choose, pick up): dialect, eligible, intellect, college, lecture, illegible.

LOG (study): biologist, logarithm, geology.

LOQ (speak): soliloquy, colloquial, eloquent.

LUC, LUM, LUS (light): illustrate, illuminate, luminous, translucent.

MIS, MISE, MIT (send): compromise, transmission, intermittent, permit, commission, promise, omission, dismissal.

MOVE, MOTE, MOB (move): mobility, commotion, momentum, motivate, removal, locomotive, promotion.

PEND, PENSE, POND, (hang, weigh): independent, compensate, suspense, perpendicular, expensive, pendulum.

PORT (carry): transport, reporter, portable, portage.

POSE, PONE (place): composition, preposition, composure, purpose, exponent, disposition, exposition, position.

SCRIBO (write): subscription, script, manuscript, transcribe.

SEQU, SEGU, SUE (follow): sequence, consecutive, prosecute, sue, consequence, sequel, second, execute.

SPEC, SPIC (look): spectator, respectable, species, perspective, conspicuous.

STA, STI(T), SIST (stand): statistics, persistence, consistent, obstacle, station, superstition, static, substance, circumstance, establish.

TACT, TANG, TAIN, TEG (touch): integrity, tangible, attain, contact, stain, tangent, tact.

TRACT, TRA (draw): tract, tractor, abstract, detract.

VENE, VENT (come): inventor, convenient, intervene, adventure, revenue.

VERT, VERS (turn): advertise, conversation, adversary, universe, convert.

VOC, VOKE (call): vocabulary, vociferous, irrevocable, avocation, vocation, revoke, vocal, advocate.

Prefixes.

The prefix modifies or qualifies the meaning of the root.

AB (away, from): absence, abstract, abnormal, abdicate.

AC, AD (to, toward): acquire, acquisition, accept, adjacent, accommodate.

ANTE (before): anteroom, antedate, antecedent, antemeridian.

ANTI (against): antidote, antipathy, antipodes, antitoxin.

AUTO (self): autocracy, automobile, autobiography, autograph.

BI (two): bisect, biped, bicycle, biennial, bichloride, binomial.

CIRCUM (round): circumnavigate, circumscribe, circumspect, circumstance.

COM, CON, COR, CO (together with): condensing,

condenser, conveyor, concentric, congruent, concurrent, coefficient, cooperate, coincidence, coherence, contemporary, consecutive, contiguous, compact.

CONTRA (against): contradict, contraband, controversy.

DE (down): decrease, derivative, denomination, denote, degenerate, decline.

DI, DIS (apart from, not): divert, dissect, dissimilar.

E, EX (out, out of, from): exhaust, exponent, extremity, excursion, except, exclude.

EXTRA (beyond): extraordinary, extracurricular, extravagant.

IL (not): illogical, illiterate, illegible.

IM, IN (in, into, not): indefinitely, immigrant, immaterial, insoluble, instill.

INTER (between): intersection, interlude, intercede, interjection, intercepts.

IR (not): irregular, irresponsible, irrelevant, irrational.

NON (not): non-conductor, nondescript, nonsense.

OB, OC, OP (against, to, towards): obstruction, obstacle, opportunity.

PARA (beside): paragraph, paraphrase, paraphernalia, paradox, parallel.

PER (through, thoroughly): percentage, permeate, perpetual, percolate.

POLY (many): polygon, polytechnic, polysyllable.

POST (after): postscript, postpone, postmeridian, post-graduate.

PRE (before): prepare, prelude, premonition, preparation.

PRO (forward): projectile, prolongation, proclaim, proceed, promote.

RE (back, again): recur, resound, relapse, recommend, refer.

SE (apart): seclude, secession, separate, segregate, secede.

SEMI (half): semicircle, semi-annual, semicolon.

SUB (under): subdivide, subjunctive, substitute, subscribe, subnormal, subway, substantial, subordinate.

SUPER (above, over, on): superimpose, superlative, superman, superstition.

TRI (three): trisect, triangle, trilogy, trimeter.

TRANS (across): transfer, transit, transpose, transverse.

Suffixes

The suffix is used to change the part of speech or the form of the word.

I. Suffixes Used to Form Nouns

-ACY: democracy, aristocracy, autocracy.

-AGE: courage, marriage, advantage, tonnage.

-AN: American, Republican, Roman, Indian (used also adjectively).

-ANCE: annoyance, conveyance, disturbance.

-ANT: applicant, emigrant, participant.

-ARY, -ERY, -ORY: dictionary, bravery, laboratory.

-ATION, -SION, -TION, -ION: operation, preservation, ventilation, cancellation, naturalization, acceleration, administration, dimension, suspension, inversion, assumption, union, observation, participation.

-EE: employee, consignee, trustee, referee.

-ER: engineer, auctioneer, profiteer, charioteer.

-ER: maker, writer, speaker, doer, worker.

-ENCE: confidence, preference, independence.

-HOOD: knighthood, manhood, hardihood.

-IAN: statistician, mathematician, comedian, physician.

-ISM: patriotism, cynicism, mechanism, colloquialism.

-IST: machinist, motorist, pessimist, optimist, humorist, idealist.

-ITY: extremity, density, productivity, activity.

-NESS: business, whiteness, kindness, loftiness.

-OR: author, doctor, surveyor, aviator, governor, investor.

II. Suffixes Used to Form Adjectives

-ABLE, -IBLE (capable of being): variable, movable, combustible, responsible, capable, perceptible.

-ACIOUS (abounding in): pugnacious, fallacious.

-AL (pertaining to): mechanical, architectural, logical, fatal, musical, historical, cynical.

-ARY, -ERY (pertaining to): complementary, complimentary, supplementary.

-FUL (full of): beautiful, healthful, merciful, bountiful.

-IC (pertaining to): atmospheric, concentric, iambic, sulphuric, enthusiastic.

-ISH, -ILY, -Y (like): childish, foolish, friendly, flighty, stony.

-IVE (tending to): talkative, pensive, productive, intensive.

-LESS (without): penniless, ruthless, senseless, thoughtless.

-OUS, -EOUS, -IOUS, -OSE (full of or inclined towards): righteous, verbose, circuitous, religious, delicious, suspicious.

III. Suffixes Used to Form Verbs

(The following generally mean *to make* or *to cause*.)

-ATE: facilitate, separate, approximate, saturate, animate, frustrate, duplicate, complicate.

-EN: lighten, redden, quicken, frighten, hasten, weaken.

-FY: terrify, amplify, satisfy, (akin to the root *fy* —to make).

-IZE: pulverize, emphasize, criticize, galvanize, vulcanize.

In the following Department vocabularies, asterisks indicate the words that appear on more than one list.

ENGLISH

Required in All Grades

accurately	description	*parallel
achievement	*definitely	*planned
across	*difference	*probably
all right	disappear	really
already	doesn't	receive
among	encouraging	recommend
athletics	finally	reference
believe	formerly	respectfully
benefited	forty	*separate
*business	immediately	stopping
certain	later	studying
changing	mathematics	successful
choose	*necessary	tragedy
coming	noticeable	villain
convenient	occasionally	women
courageous	*occurred	written
decide	omission	

Grade I.

absence	experience	quiet
accept	guilty	reverence
accidentally	herpes	rhyme
adviser	hoping	schooner
altogether	hurried	seize
angel	innocent	shining
appearance	library	supernatural
author	lying	*technical
captain	marooned	*thorough
*character	meant	*through
*conscience	mutiny	truly
conscious	originally	*tying
course	penance	until
disappoint	pilot	weapon
emerald	pirate	whether
enemies	poem	writing
except	quarter	

Grade II.

adjective	hazardous	remote
*ambition	heather	righteous
assistance	heir	sacrifice
brutal	hospitality	safety
*cabinet	huge	scarlet
challenging	humility	*similar
costume	humorous	sorceress
crippled	immense	surprise
custom	jealous	taunt
cutlasses	judgment	thorough
*develop	medieval	tournament
enchantment	minor	treason
exercise	obstinate	using
forcibly	piercing	*valor
garrison	plaid	victim
gratitude	pretense	weather
guarantee	recognition	

Grade III.

abundant
accomplish
adventurous
amber
*analysis
antagonist
appreciate
beginning
council
counseled
discreet
*divide
eerie
*effect
escape
exciting
fiend

foreigner
goddess
*identity
immortal
*incident
insinuate
interval
invincible
messenger
model
mysterious
mythology
narrative
outwitted
peculiar
prudent
pursue

*qualities
servant
shrewd
shriek
slothful
*sovereign
strategy
succeed
*suspense
suspicious
treacherous
uncanny
village
weird
wretch
yield

Grade IV.

acquitted
aggravate
*alien
arrival
attorney
autobiography
career
*characteristic
chateau
coincidence
commit
condemned
confiscate
cruelty
despair
disagree
encouraging

enforcement
*equipment
famished
forfeit
frontier
governor
grievance
emigrant
imprison
lawyer
leisurely
marriage
*naturalist
novel
obstacle
oppression
peasant

plead
politician
possess
precede
prejudice
refinement
refuge
revenge
statesman
strenuous
trial
turquoise
various
vengeance
vigor
violent

Grade V.

airplane
*ambitious
anthology
*approximate
ascend
assassin
astronomer
aviation
*basis
chronological
*column
communication
compute
concrete
conquered
conspicuous
conspirators

curiosity
*derivative
design
disease
*equivalent
evolution
facilitate
faithful
fulfill
ghost
*hypothesis
improvement
inconsistent
*irrational
laboratory
lyric
*machinery

minimum
miscellaneous
modifies
noblest
operate
participle
*physicist
planet
*principle
*procedure
purple
rhythm
ridiculous
scientific
*theories
tendency

Grade VI.

amateur
architecture
*aristocratic
casually
chivalry
colloquialism
comedian
competition
courtesy
crimson
encumber
essential
ethical
familiar
fraudulent
gentleman
ideal

idiomatic
idyll
imaginary
ineffectual
influence
informal
intimate
joust
*literary
loyalty
magician
miraculous
obvious
peaceable
personality
précis
preliminary

reconcile
recreation
recurring
repetition
resemble
romantic
scrupulous
sentimentality
siege
subtle
superfluous
thwart
typical
*variable
*virtue
whimsical

Grade VII.

admissible
admonition
allegiance
allusion
*alternative
analogous
argument
assumption
benevolence
concede
contemporary
controversial
conventional
corresponding
*criticize
degeneration
destiny

dialogue
discriminating
exaggerate
exquisite
extraordinary
fallacy
historical
incorruptible
independence
inference
logical
moralize
mutual
outrageous
persuade
picturesque
precedent

privilege
rational
realism
refutation
regional
revolutionary
rhythmical
romanticism
scholarly
*significant
solicitous
spontaneous
temporary
theological
unique
vicarious

Grade VIII.

abstraction
*affectation
apparition
comparatively
connotation
*conscientious
*conservative
*criticism
culture
destitution
dissatisfied
*efficiency
eighth
elegy
embarrass
emotion
enthusiasm

epic
genius
hackneyed
hypocrisy
illusion
imagination
indispensable
individual
inevitable
*initiative
integrity
intellectual
intelligence
liability
*liberal
optimist
paradox

pessimist
philosophy
profession
prophecy
psychological
religious
*society
soliloquy
sonnet
*stationary
superstitious
*sympathetic
temperament
vicious
vocation
wisdom

MATHEMATICS

Grades I. and II.

binomial
brace
bracket
*coefficient
complementary
consecutive
decimal
degree
*difference
digit
*dividend
*divisor
eliminate
*equation
evaluation
exceeds
*excess
exponent

expression
factor
forces
*formula
*fraction
*fulcrum
*graph
*index
*indices
*literal
*minus
*monomial
*parentheses
*parenthesis
percentage
perigon
*polynomial
proportion

protractor
quadratic
quotient
*radical
*ratio
*rectangle
*sign
simultaneous
statistics
subtraction
*supplementary
trebled
trinomial
*variation
*vertex
*vertices
vinculum

Grade III.

*characteristic
ellipse
hyperbola

*irrational
logarithm
mantissa

parabola
*radical
*rational

Grades IV. and V.

acute
adjacent
*alternate
altitude
*analysis
angle
apothegm
*arc
area
bisector
center
*chord
circumcenter
circumference
complementary
concurrent

congruent
corollary
corresponding
*definition
diagonal
diameter
*equiangular
equidistant
equilateral
*equivalent
exterior
*hexagon
*horizontal
hypotenuse
*hypothesis
incircle

isosceles
loci
locus
*median
midpoint
*oblique
obtuse
*octagon
opposite
*parallel
*parallelogram
*pentadecagon
*pentagon
perimeter
perpendicular
pi

plane
 *proportional
 quadrilateral
 *radii
 *ratio
 rectangle
 rhombus

abscissa
 *approximate
 ambiguous
 cosine
 cotangent
 function

axis
 axes
 collinear
 cone
 conical
 coplanar
 *cylinder
 directrix

*derivative
 discriminant
 homogeneous

*secant
 sector
 *semicircle
 *similar
 *supplementary
 *theorem
 transversal

Grade VI.

*identities
 *identity
 infinity
 ordinate
 quadrant
 resultant

Grade VII.

dodecahedron
 frustrum
 generatrix
 hexahedron
 icosahedron
 midsection
 *octahedron
 *parallelepiped

Grade VIII.

interpolation
 intercept
 *permutation

trapezoid
 trisect
 *vertex
 *vertical
 *vertices

*secant
 sine
 *significant
 tangent
 trigonometry

polyhedron
 *prism
 *prismatic
 *prismatoid
 pyramid
 pyramidal
 skew
 truncated

*probability
 *progression
 *synthetic

HISTORY

ad valorem duty
 *alien
 amendment
 anarchy
 appellate
 arbitration
 *aristocracy
 attainder (bill of)
 autocracy
 *balance of trade

bicameral
 bimetalism
 boycott
 budget
 bureaucracy
 *business cycle
 *cabinet
 capita (per)
 capital punish-
 ment

caucus
 census
 civil service
 closed shop
 collective bar-
 gaining
 company union
 compromise
 conciliation
 *conservative

constitution
 democracy
 *depreciate
 depression
 dictatorship
 direct tax
 *division of labor
 "dole"
 draft
 dumping
 *economic
 embargo
 eminent domain
 excise tax
 executive
 ex post facto law
 extradition
 face value
 fiat money
 franchise
 free trade
 funding agree-
 ment
 gerrymandering
 grand jury
 habeas corpus
 (writ of)
 impeachment
 imperialism
 indictment
 indirect tax
 inflation
 *initiative
 injunction
 *insular
 insurgent

internationalism
 interstate
 intrastate
 intrinsic value
 *isolation
 jingoism
 judicial
 jurisdiction
 "lame duck"
 laissez-faire
 legal tender
 legislature
 liberal
 *literacy
 lobbying
 lockout
 majority
 mandamus
 (writ of)
 monarchy
 monopoly
 moratorium
 nationalism
 naturalization
 open shop
 pardon
 parole
 paternalism
 patronage
 petit (petty)
 jury
 picketing
 *planned economy
 plebiscite
 plurality
 police power

political
 political machine
 preamble
 *primary (direct)
 *progressive
 propaganda
 *protective tariff
 public ownership
 public regulation
 public utility
 quorum
 *radical
 ratify
 *reactionary
 recall
 referendum
 reparation
 reprieve
 republic
 rugged individu-
 alism
 sabotage
 ship subsidy
 *social
 *sovereignty
 specie
 specific duty
 spoils system
 status quo
 strike
 suffrage
 tariff
 *technological
 unemployment
 theocracy
 veto

CHEMISTRY

*abrasive
 acid
 activity
 adsorption
 alchemy
 alkaline
 allotropic
 *alloy
 *amalgamation
 amorphous
 anaesthetic
 *analysis
 anhydride
 anhydrous
 *anneal
 anode
 antidote
 antifreeze
 antiseptic
 *apparatus
 aqua
 asphyxiation
 atom
 autogenous
 *balancing
 *barometer
 *base
 by-product
 carbonated
 catalysis
 cathode
 caustic
 *centrifugal
 charge
 chemical
 classification
 cleansing
 coagulation
 coating
 colloid
 combination

combustion
 commercial
 *composition
 compound
 concentration
 *condenser
 *conservation
 constituent
 contact
 conversion
 *corrosion
 crystallization
 curd
 *cycle
 decolorize
 decomposition
 dehydrate
 deliquescent
 denature
 density
 deoxidize
 deposit
 destructive
 detection
 detergent
 determination
 *development
 *diffusion
 *dilute
 *dilution
 disinfectant
 disintegrate
 *dispersion
 *dissociate
 dissolve
 distillation
 *ductility
 *dynamic
 effervescence
 efflorescence
 electrochemical

*electrolysis
 *electrolytic
 electron
 electroplating
 element
 emulsion
 *energy
 enrich
 enzyme
 *equation
 *equilibrium
 *etch
 *excess
 *experimentation
 explanation
 extinguish
 extraction
 fermentation
 filter
 fixation
 flammable
 fluorescence
 *flux
 *formula
 *fractionating
 fungicide
 *fusion
 galvanize
 gaseous
 gelatinous
 generator
 glaze
 granulated
 *graphical
 gravimetric
 homogeneous
 humidity
 *hydrate
 *hydrolysis
 *hypothesis
 *identify

*illuminating
 impregnate
 impurity
 inactive
 *incandescence
 indestructible
 indicator
 industry
 *inert
 *ion
 *ionization
 insecticide
 *instantaneous
 intermediate
 *isolate
 kiln
 *kinetic
 lacquer
 leavening
 *liberation
 liming
 liquefaction
 *luminescent
 *luminosity
 *malleable
 *medium
 *metallurgy
 mineral
 miscible
 *molecular
 *molecule
 mordant
 muriatic
 nascent
 native
 negative
 neutralization
 *nitrification
 nomenclature
 nucleus

occlusion
 *occurrence
 ore
 osmosis
 oxidation
 periodic
 *permeable
 *phenomenon
 photochemical
 photosynthesis
 *physical
 pickling
 pigment
 platinize
 precipitation
 preparation
 *process
 product
 promote
 *property
 *protective
 pulverize
 purification
 *qualitative
 *quantitative
 *radiation
 *radical
 radioactivity
 rarefy
 *reaction
 reagent
 reclaim
 reduction
 refrigerant
 replacement
 residue
 reverberatory
 reversible
 roasting
 saponification

saturated
 sedimentation
 sensitive
 setting
 slag
 slake
 smelting
 *solubility
 *soluble
 *solute
 *solution
 *solvent
 source
 *spectra
 spontaneous
 stability
 standard
 structure
 sublimation
 substitution
 support
 *suspension
 symbol
 *synthesis
 tarnish
 *tempering
 tension
 *theory
 tincture
 *transmutation
 toxic
 treatment
 *valence
 *vaporization
 viscosity
 volatile
 volumetric
 vulcanization
 welding

PHYSICS

*acceleration
 acoustics
 adhesion
 *affect
 *aneroid
 *amalgamate
 ammeter
 *ampere
 *amplitude
 armature
 artificial
 atmosphere
 *balance
 *barometer
 boiling
 *buoyancy
 *calibrate
 caloric
 capacity
 *capillarity
 *capillary
 centimeter
 *centrifugal
 *centripetal
 *characteristics
 *chord
 *coefficient
 cohesion
 *column
 *commutator
 *component
 *composition
 concurrent
 conductor
 *conservation
 current
 *diaphragm
 diffraction
 *diffusion
 *dirigible
 *dispersion
 eclipse
 *effect
 *efficiency
 *electrolysis
 *electrolyte
 *emit
 *energy
 *equilibrant
 *equilibrium
 *equivalent
 fahrenheit
 frequency
 *fulcrum
 fundamental
 *galvanometer
 *graphic
 *height
 *illuminate
 *illuminated
 *impenetrability
 *incandescent
 *incidence
 induction
 *inertia
 *initial
 *insulator
 intensity
 interference
 *kinetic
 *lens
 lodestone
 *luminous
 magnet
 *magnify
 *magnitude
 *mechanical
 moment
 multiply (versus
 "times")
 *obliquely
 octave

opaque
 overtones
 *parallel
 penumbra
 *permanent
 *phenomenon
 *physics
 polarization
 potential
 *principle
 *primary
 *procedure
 projectile
 *properties
 pulleys
 *qualitative
 *quantitative
 rarefaction
 *reflection
 refraction
 refrigerator
 regelation
 reinforcement
 *resistance
 resolution
 resonance
 secondary
 selective
 siren
 *solenoid
 *spectrum
 substance
 *sympathetic
 *temperature
 tenacity
 *thermometer
 translucent
 transparent
 umbra
 uniform
 universal

*vacuum
 *vaporization
 velocity
 vibration

*virtual
 visibility
 voltmeter
 weather

*weighed (versus
 "weighted")

APPLIED ELECTRICITY

absorption
 abhors
 *acceleration
 *affects
 *alternator
 *amalgamated
 *ammeter
 ampere
 *amplitude
 *aneroid
 antenna
 *arcing
 auxiliary
 balloon
 *basically
 *buoyant
 *carburetor
 cartridge
 *centrifugal
 *centripetal
 *characteristic
 *coefficient
 collapsing
 *column
 *commutator
 *component
 conduit
 continuous
 *corrode
 cumulative
 *cylindrical
 declination
 *depreciation
 device
 *diaphragm
 *difference
 *differential

dimension
 *dirigible
 *disassociation
 *dynamo
 *economical
 *effects
 *efficient
 *electrolysis
 *electrolytic
 *equilibrate
 *equipment
 *experiment
 federal
 filament
 *galvanometer
 gauge
 *height
 hemisphere
 *horizontal
 *hydraulic
 hysteresis
 hydrometer
 impedance
 *incident
 installation
 *instantaneous
 *ionization
 laminated
 *lens
 lubricant
 *luminair
 *luminous
 maintenance
 manual
 *mechanical
 *minimize
 *necessary

negligible
 nickel
 oscillation
 *parallax
 *parallel
 *penetrability
 pentode
 *permanent
 *permeability
 plier
 pneumatic
 practical
 *procedure
 Prony brake
 *principle
 *radiant
 *rectifier
 *rectifying
 *reflection
 repulsion
 reservoir
 residual
 *resistance
 *resonance
 reverse
 revise
 rotary
 sequence
 schematic
 *separate
 siphon
 *solenoid
 *stationary
 *supplementary
 *synchronizing
 *synchronous
 syringe

tachometer
*temperature
terminal

*thermo-couple
torque
*vacuum

*variable
*vertical
*weight

METAL SHOP

*abrasive
acetylene
allegheeny
aluminum
*anneal
anvil
*apparatus
arbor
ash gate
automatic
back lash
bench plate
bevel
bituminous
blacksmith
blast gate
block tongs
brass
bronze
*calipers
carborundum
casehardening
chamfer
chatter
clearance
collet
coolants
cooper
counterbored
damper
*dividers
drawing-out
duraluminum
elevation
fire pot
flat jawed
flatter
*flux
forge draught
fullers
gad, bolt
galvanized
gear
girth
goggles
grooved
hammer, peen
hardening
hardie
*hexagonal
horn cutting block
keyway
machinist
*malleable
mallet
*mechanism
micrometer
mandrél
manganese
manifold blow-
pipe
monel
octagonal
off-setting
overhanging
oxygen
packhardening
*parallel line de-
velopment
pawl
perspective
pewter
phosphorous
pliers
pointing
prick punch
pritchel hole
*radial line de-
velopment
ratchet
reamer
regulator
rivet
sal ammoniac
scarfed
scratch awl
shears
shims
shouldering
sleeve
solder
soldering iron
*spectacles
spindle
squaring shears
stretchout
swage
swage-block
T-square
*tempering
tin plate
transition
*transmitted
*triangulation
*turning machine
tuyere
twisting
upsetting
veins
vernier
vise
*volatile

HEAT TREATMENT OF METALS

*achromatic
*alloy
*anneal
austenite
*carburizing
*casehardening
cementation
cementite
cold-worked
*condenser
*critical point
*critical range
decalescent
dilatation
*ductility
*etchant
*etching
eutectic
eutectoid
ferrite
ferrous
*fusibility
hot-worked
hyper-eutectic
hyper-eutectoid
hypo-eutectic
hypo-eutectoid
ingotism
intercrystalline
intracrystalline
iris diaphragm
levigated
macrograph
*malleable
*malleablizing
martensite
matrix
*metallography
*metalloscope
*metallurgy
micro-structure
*monochromatic
*nitriding
non-ferrous
normalize
ocular
patented
photomicrograph
picric
pyrometer
quaternary
recalescent
scleroscope
segregation
sorbite
spheroidized
*temper
*thermo-couple
ternary
troostite
twinning

BTHS READING LIST

Fiction

ADVENTURE

The Iron Trail, the Silver Horde—Beach
Gap in the Curtain, The Blanket of the Dark, Magic Walking Stick, Castle Gay, John McNab, John Burnet of Barns, Massacre at Glencoe, Mr. Standfast, Greenmantle, Three Hostages, Dancing Floor, Witch Wood, Prince of Captivity, House of the Four Winds, Prester John, Man from the Norlands—Buchan
Back to Treasure Island—Calahan
Soldiers of Fortune—Davis
The Exploits of Brigadier Gerard—Doyle
Count of Monte Cristo, The Three Musketeers, Twenty Years After, Vicomte de Bragelonne—Dumas
The Quest of Youth, Black Bartelmy's Treasure, The Amateur Gentleman, Broad Highway, Pageant of Victory—Farnol
Erskine Dale, Pioneer—Fox
The Dark Frigate, The Great Quest—Hawes
Westward Ho!—Kingsley
Burning Daylight, Martin Eden—London
Victorious Troy, Bird of Dawning, The Taking of the Gry, Sard Harker, Mainsail Haul—Masefield
Command—McFee
Moby Dick, Typee, Omoo—Melville
Mutiny on the Bounty, Men Against the Sea, Pitcairn's Island, The Hurricane—Nordhoff and Hall
Enchanted Canyon—Morrow
Scarlet Pimpernel, The Return of the Pimpernel—Orcey
Ships Across the Sea—Paine
Romantic Prince, Captain Blood, Fortunes of Captain Blood, Chivalry—Sabatini
Night Flight, Southern Mail—St. Exupéry
Alan Breck Again—Smith
Caleb West, Master Diver; The Fortunes of Oliver Horn—F. H. Smith
Wings of the Morning—Tracy
Soldiers of Misfortune—Wren

The Riverman, Blazed Trail, Silent Places, The Forest, Claim-Jumpers, The Long Rifle, Ranchero, Skookum Chuck—White

HISTORICAL FICTION

Stories of Our Country

Colonial Period

Shadows on the Rock—Cather
Deerslayer—Cooper
To Have and to Hold, Prisoners of Hope, Croatan—Johnston
Sachim Bird—Robinson

French and Indian War

Last of the Mohicans, The Pathfinder—Cooper
Seats of the Mighty—Parker
Cold Journey—Stone

The Revolution

The Conqueror—Atherton
In the Days of Poor Richard, Master of Chaos—Bacheller
Drums—Boyd
Richard Carvel—Churchill
The Pilot, The Spy—Cooper
Gilman of Redford—Davis
Drums Along the Mohawk—Edmonds
Janice Meredith—Ford
Cockades—Minnegerode
Great Meadow—E. Roberts
Rabble in Arms, Arundel—K. Roberts
Carolinian—Sabatini
The Virginians—Thackeray

War of 1812

Lively Lady, Captain Caution—Roberts
Rock and the River—Connor

The Civil War

Perfect Tribute—Andrews
A Man for the Ages—Bacheller
Marching On—Boyd
Operator 13—Chambers
The Crisis—Churchill

Red Badge of Courage—Crane
The Battle Ground—Glasgow
Peter Ashley—Heyward
The Long Roll—Mary Johnston
Gone with the Wind—Mitchell
With Malice Toward None, Forever Free—Morrow
Red Rock—Page
So Red the Rose—Young

The Westward March

Long Hunt—Boyd
O Pioneers—Cather
Main Traveled Roads—Garland
Last of the Plainsmen—Grey
Covered Wagon, 54-40 or Fight, North of 36, Magnificent Adventure—Hough
Vandemark's Folly, Hawkeye—Quick
Ranchero, Long Rifle—White
Giants in the Earth—Rølvaag

Stories of Other Countries

The Tower of London—Ainsworth
Via Crucis—Crawford
Friend of Caesar, The Victor of Salamis, The Whirlwind, The Friar of Wittenberg—W. S. Davis
The White Company, The Refugees—Doyle
Romola—Eliot
Secret of the Bastille—Feval and Lassez
The Reds of the Midi—Gras
The Young Sir Walter—Grey
Oil for the Lamps of China—Hobart
Ninety-three, Les Miserables—Hugo
Last Days of Pompeii—Lytton
The Peasant and the Prince—Martineau
Martin Hyde—Masefield
Quiet Street—Ossorgin
Helmet of Navarre—Runkle
Quentin Durward, The Talisman—Scott
With Fire and Sword, The Deluge, Pan Michael, Quo Vadis—Sienkiewicz
Black Arrow—Stevenson
Ben Hur—Wallace
A Gentleman of France, Under the Red Robe—Weyman

NOVELS FOR OLDER BOYS

The Conqueror—Atherton
Eben Holden, The Light in the Clearing—Bacheller
Clayhanger—Bennett
Inheritance, A Modern Tragedy—Phyllis Bentley
Roll River—Boyd
Messer Marco Polo, Destiny Bay, Hangman's House, The Field of Honor—Byrne
As the Earth Turns—Carroll
Death Comes for the Archbishop, Professor's House, My Antonia—Cather
Happy Mountain, Weather Tree—Chapman
Coniston, Mr. Crewe's Career, The Far Country, The Inside of the Cup, Modern Chronicle—Churchill
Paths of Glory—Cobb
John Dawn—Coffin
Typhoon, Nigger of the Narcissus, Lord Jim, Nostromo—Conrad
Old Pybus, Sorrell and Son—Deeping
Joseph Vance, Somehow Good—De Morgan
Pickwick Papers—Dickens
Rome Haul, Drums Along the Mohawk—Edmonds
Daniel Deronda, Adam Bede—Eliot
Show Boat, American Beauty, Come and Get It—Ferber
The Deepening Stream—Fisher
Maid in Waiting, Forsyte Saga, A Modern Chronicle—Galsworthy
Cross of Peace, Golden Years, Hidden City—Gibbs
Vain of Iron—Glasgow
The Mountain and the Plain—Gorman
Beyond Sing the Woods—Gulbrannsen
Slm—Haines
Growth of the Soil—Hamsun
Return of the Native—Hardy
Scarlet Letter—Hawthorne
Lost Horizon, Without Armor, Good-bye Mr. Chips, And Now Good-bye—Hilton
Hunchback of Notre Dame, Les Miserables, The Man Who Laughs, Toilers of the Sea—Hugo
If Winter Comes, The Happy Warrior, Once Aboard the Lugger—Hutchinson

The Light That Failed, *Kim*—Kipling
Gösta Berling—Lagerlöf
Sea Witch—Laing
Main Street, *Arrowsmith*, *It Can't Happen Here*, *Work of Art*, *Babbitt*—Lewis
Casuals of the Sea—McFee
The Pit, *The Octopus*—Frank Norris
The Informer—O'Flaherty
The Battle of the Strong—Parker
The Harbor, *Blind*—Poole
Good Companions, *Angel Pavement*—Priestley
The Doctor—Rinehart
Giants in the Earth, *Peder Victorious*—Rölvaag
Oil, *The Jungle*—Upton Sinclair
The Sailor, *Undeclared*—Snaith
The Garden—L. A. G. Strong
Vanity Fair, *The Virginians*—Thackeray
The Windmill on the Dunes—Waller
Fortitude, *Rogue Herries*—Walpole
Tono-Bungay—Wells
Ethan Frome—Wharton
El Supremo—E. L. White
A Certain Rich Man—W. A. White
Bridge of San Luis Rey—Wilder
Hunky—T. Williamson
The Great Crusade—Wise

INTERESTING NOVELS FOR EVERYBODY

Buried Alive—Bennett
Midwinter, *Man from the Norlands*—Buchan
Crusade—Donn Byrne
Don Quixote—Cervantes
The Prospector, *The Doctor*—Connor
Typhoon—Conrad
David Copperfield, *Oliver Twist*, *Old Curiosity Shop*, *Nicholas Nickleby*—Dickens
Green Light, *Magnificent Obsession*—Douglas
The Count of Monte Cristo, *The Three Musketeers*—Dumas
Cimarron, *So Big*—Ferber
The Crime of Sylvestre Bonnard—France
Green Mansions—Hudson
Great Aunt Lavinia, *Storm Signals*, *Blowing Clear*,

Blair's Attic, *The Portygee*, *Dr. Nye*, *Cap'n Eri*, *Galusha the Magnificent*—Lincoln
The Rough Road, *Beloved Vagabond*, *The Great Pandolfo*—Locke
The Haunted Bookshop—Morley
The Bounty Trilogy, *The Hurricane*—Nordhoff and Hall
Dr. Jekyll and Mr. Hyde, *The Master of Ballantrae*—Stevenson
Rudder Grange—Stockton
Seventeen, *Gentleman from Indiana*, *Claire Ambler*, *The Plutocrat*, *The Magnificent Ambersons*, *Mirthful Haven*—Tarkington
Jeremy, *Jeremy and Hamlet*—Walpole
David Harum—Westcott
The Virginian—Wister
The Winning of Barbara Worth—Wright

STORIES WITH A SCIENTIFIC BENT

The Spreading Stain—Finger
By Rocket to the Moon—Gail
She, *King Solomon's Mines*—Haggard
Trip to the Moon, *Five Weeks in a Balloon*, *Journey to the Center of the Earth*, *Mysterious Island*, *Twenty Thousand Leagues Under the Sea*—Verne
The Time Machine, *Invisible Man*, *War of the Worlds*, *Men Like Gods*, *The War in the Air*—Wells

MYSTERY

Thirty-nine Steps—Buchan
March Island Mystery, *Glen Hazard*—Chapman
Innocence of Father Brown, *The Man Who Knew Too Much*, *Wisdom of Father Brown*, *The Incredulity of Father Brown*—Chesterton
Pudd'nhead Wilson—Clemens
The Moonstone—Collins
Adventures of Sherlock Holmes, *Return of Sherlock Holmes*, *Case Book of Sherlock Holmes*—Doyle
The Loring Mystery—Farnol
Lost Caravan, *Talking Drums*—Fleming
The Mummy's Foot—Gautier
Was It Murder?—Hilton
The General's Ring—Lagerlöf
Dr. Scarlett—Alexander Laing
The Perfect Alibi, *The Red House Mystery*—Milne

Through the Wall—Moffatt
Haunted Bookshop—Christopher Morley
Double Four, The Great Impersonation—Oppenheim
Sir Percy Hits Back—Orczy
The Red Redmaynes, The Grey Room—Phillpotts
Tales of Mystery—Poe
Monsieur Jonquellé, Prefect of Police of Paris—Post
The Album, The Door, The Circular Staircase—Rinehart
The Nine Tailors, Third Omnibus of Crime—Dorothy Sayers
Six Against Scotland Yard—Dorothy Sayers and others
Mr. Guelpha—Thompson
Tutt and Mr. Tutt (and other Tutt stories)—Train
Doomed Five, Spooky Hollow, The Furthest Fury—Wells
The Mysterious Waye—Wren
The Greene Murder Case, The Bishop Murder Case—Van Dine (Wright)

SHORT STORIES

The Lucky Number—Beith (Ian Hay pseud.)
Can Such Things Be?—Bierce
The Runagates' Club, Book of Escapes and Hurried Journeys—Buchan
Limelight Nights—Burke
Old Creole Days—Cable
Now That April's Here—Callaghan
Obscure Destinies—Cather
Chekhov's Short Stories
The Incredulity of Father Brown, Tales of the Long Bow—Chesterton
Gloucestermen, Out of Gloucester—Connolly
Youth and Other Stories—Conrad
Gallagher and Other Stories, In the Fog, Stories for Boys—Davis
Sun-Dial Time—Don Marquis
Round the Fire Stories—Doyle
Battles Royal Down North, Harbor Tales Down North—Duncan
The Shadow and Other Stories—Farnol
Old Fashioned Tales—Gale
Main Traveled Roads—Garland
Labrador Days—Grenfell

Selected Western Stories, Luck of Roaring Camp—Harte
Twice-Told Tales—Hawthorne
Tales of the Pampas—Hudson
Captains All, Many Cargoes, Sailors' Knots, Snug Harbor—Jacobs
The White Ship—Kallas
Debits and Credits, Traffics and Discoveries, Plain Tales from the Hills—Kipling
Round-Up—Lardner
Tales of the Fish Patrol, The Faith of Men and Other Stories—London
The Cook and the Captain Bold, Wide Seas and Many Lands—Mason
No More Trumpets—Milburn
Collected Works of Saki—H. H. Munro
Walking Shadows—Noyes
Voice of the City, Four Million, Cabbages and Kings, Sixes and Sevens, Trimmed Lamp, Ransom of Red Chief and Other Stories, Options—Porter (O. Henry)
Vignettes of the Sea—Riesenberg
Down to the Sea, Spun Yarn—Robertson
Man Who Saw Through Heaven—Steele
New Arabian Nights, More Arabian Nights, Merry Men—Stevenson
The Lady or the Tiger, and Other Stories—Stockton
The Critter and Other Dogs—Terhune
Tutt for Tutt, Mr. Tutt Takes the Stand—Train
Thirty Strange Stories—Wells
The Court of Boyville—White

SHORT STORY ANTHOLOGIES

The Wonder Book of Travellers' Tales—H. C. Adams
Golden Tales of the Prairie States, Golden Tales of New England, Golden Tales of Our America—Becker
Great Short Stories of the World—Clark and Lieber
Americans All—Heydrick, ed.
Bedside Book of Famous American Short Stories—Burrell and Cerf, ed.
O'Brien's Best Short Stories of the Year, Published annually
O. Henry Memorial Prize Stories, Published annually

Non-Fiction

PLAYS

Shorter Plays

Half Hours—Barrie
Frightful Plays—Brooks
Submerged—Cottman and Shaw
Allison's Lad—Dix
A Night at an Inn, Plays of Gods and Men, The Gods of the Mountain—Dunsany
The Bishop's Candlesticks—Hugo
Napoleon Crossing the Rockies—Mackaye
The Locked Chest—Masefield
Man in the Bowler Hat—Milne
Moon of the Caribbees—O'Neill
Bury the Dead—Shaw
Riders to the Sea, Playboy of the Western World—Synge
The Ghost Story—Tarkington
Twenty-five Modern Plays—ed. Tucker
Where But in America?—Wolff

Longer Plays

Both Your Houses, Mary of Scotland, Valley Forge, Winterset, Elizabeth the Queen—Anderson
Admirable Crichton, Little Minister, Dear Brutus—Barrie
Return of Peter Grimm—Belasco
The Barretts of Wimpole Street—Besier
Beggar on Horseback—Kaufman and Connelly
Green Pastures—Connelly
Murder in the Cathedral—T. S. Eliot
Loyalties, Escape, Strife, Justice, Silver Box—Galsworthy
Allison's House, The Inheritors—Glaspell
The Pirates of Penzance, The Mikado, Patience—Gilbert and Sullivan
She Stoops to Conquer—Goldsmith
Porgy—Heyward
Victoria Regina—Laurence Housman

The Late Christopher Bean, Yellow Jack—Howard
An Enemy of the People, The Master Builder—Ibsen
The Torch Bearers, The Show Off—Kelly
Dead End—Kingsley
Ivory Door—Milne
Plough and the Stars—O'Casey
The Hairy Ape, Anna Christie, Ah Wilderness, Emperor Jones—O'Neill
Distraet—Parker
The Fool, The Enemy—Pollock
Cyrano de Bergerac—Rostand
The Tempest, Twelfth Night, Taming of the Shrew, As You Like It, Merry Wives of Windsor, Comedy of Errors, Henry IV, Richard II, Othello—Shakespeare
Pygmalion, Candida, Saint Joan, Arms and the Man, Doctor's Dilemma—Shaw
The Rivals, School for Scandal—Sheridan
Journey's End—Sherriff
Richard of Bordeaux—Wyndham
The Melting Pot—Zangwill

POETRY

Stories in Verse

John Brown's Body, A Book of Americans—Benét
Chaucer's Canterbury Tales—translated by F. E. Hill
Dauber, Reynard the Fox—Masefield
Songs of the Indian Wars—Neilhardt
The Torch Bearers, Tales of the Mermaid Tavern—Noyes
Tristram, Glory of the Nightingales—Robinson

Lyrical Poetry

The Melancholy Lute—F. P. Adams
McAroni Ballads, Selected Poems—Daly
North of Boston, West Running Brook, A Boy's Will, Further Range—Frost
Ballads of Old New York, Laughing Muse, I Sing the Pioneer, Gaily the Troubadour, Death and General Putnam—Guiterman
Barrack Room Ballads, Songs for Youth, Collected Verse—Kipling
Congo, Chinese Nightingale—Lindsay
Man with the Hoe and other Poems—Markham

Noah'n Jonah'n Cap'n John Smith—Marquis
 Salt Water Ballads, Collected Verse—Masfield
 Chimney Smoke, Chinese Mandarin, Parsons and Pleas-
 ures—Morley
 Smoke and Steel; Chicago Poems; The People, Yes—
 Sandburg
 The Spell of the Yukon, Rhymes of a Red Cross Man
 —Service
 Sailor Town—Smith
 Frontier Ballads—Finger

Anthologies

Winged Horse Anthology—Auslander
 Songs of Dogs, Songs of Horses—Frothingham
 American Ballads and Folk Songs, Cowboy Songs—Lo-
 max
 Anthology of Sporting Verse—Osborn
 Modern American Poetry, Camp Fire Verse, This Sing-
 ing World—Untermeyer
 Book of Humorous Verse—Carolyn Wells
 New Voices—Wilkinson
 Little Book of Modern Verse—Rittenhouse
 Poems for Every Mood—Monroe
 Come Hither—De la Mare
 Magic Casements—Carhart and McGhee
 What I Like in Poetry—Phelps
 Manthology—Schauffler
 Anthology of World Poetry—Van Doren

ESSAYS

East of the Hudson—Atkinson
 On Nothing, On Something—Belloc
 How to Live on Twenty-four Hours a Day—Bennett
 The Silent Isle—Benson
 Seeing Things at Night—Brown
 What Men Live By—Cabot
 Art and the Machine—Cheney
 Sidelights, All I Survey, Tremendous Trifles; Varied
 Types, Avowals and Denials, What's Wrong with the
 World?—Chesterton
 Thought Broker, Gentle Reader—Crothers
 After All—Day
 The Art of Thinking—Dimnet

The Enjoyment of Laughter, Enjoyment of Poetry, Art
 and the Life of Action—Eastman
 The Moral Obligation to be Intelligent—John Erskine
 Sweet Land—Gannett
 Roadside Meetings, Companions on the Trail, My
 Friendly Contemporaries, Afternoon Neighbors—
 Garland
 Adventures in Friendship, Adventures in Understanding
 —Grayson
 The Adventure of Life—Grenfell
 Men and Books and Cities—Holliday
 The Autocrat of the Breakfast Table—Holmes
 Essays of Elia—Lamb
 Funny Pieces, The Perfect Salesman, Fish on Friday,
 Literary Lapses, Sunshine Sketches of a Little Town,
 Essays and Literary Studies—Leacock
 A Little of Everything—Lucas
 Harbors of Memory, More Harbors of Memory, Swal-
 lowing the Anchor—McFee
 For the Sake of Shadows—Miller
 Streamlines, Off the Deep End, Internal Revenue, Pipe-
 fuls, Mince Pie—Morley
 Sticks and Stones (American architecture and civiliza-
 tion)—Mumford
 Derby Day and Other Adventures—Newton
 Lost Ships and Lonely Seas—Paine
 What I Like (in prose), Essays on Things—Phelps
 For Authors Only—Roberts
 On Reading Shakespeare—Smith
 Little Essays—Thoreau
 Old Junk—Tomlinson
 Reading—Walpole
 The Unintentional Charm of Men, Life's Minor Col-
 lisions—Warner
 While Rome Burns—Woollcott

Outdoor Life

Through the Woods—H. E. Bates
 Land of the Midnight Sun, Jungle Peace—Beebe
 Birds and Bees, The Wit of a Duck, Camping and
 Tramping with Roosevelt, Fresh Fields, Sharp Eyes
 Burroughs
 Trails of the Hunted—Clark

In African Forest and Jungle—Du Chaillu
Nature Chats—Furboy
Boy Life on the Prairie—Garland
Camp Life in the Woods—Gibson
Indians of Today—Grinnell
Camps and Firesides—Hart
Minds and Manners of Wild Animals—Hornaday
Wild Life in the Rockies—Mills
The Art of Walking—Mitchell, ed.
Adventures in Contentment, The Countryman's Year—
 David Grayson (pseud.)
*Working My Way Around the World, A Thousand Mile
 Walk to the Gulf, Our National Parks*—Muir
A Game Ranger's Notebook—Percival
Hunting Tales of a Ranchman, African Game Trails—
 Roosevelt
Face of the Fields—Sharp
Birds in the Wilderness—Sutton
The Maine Woods—Thoreau
Loafing Down Long Island—Towne
*Fisherman's Luck, Out of Doors in the Holy Land,
 Campfires and Guideposts*—Van Dyke
Back Log Studies—Warner
Alaskan Days with John Muir—Young

REAL ADVENTURE

Travel and Exploration

First Crossing of the Polar Sea—Amundsen and Ells-
 worth
This Business of Exploring—Andrews
Told at the Explorers' Club—Blossom
Discovery, Little America—Byrd
Exploring Today—Ellsworth
Valiant Vagabonds, The Distant Prize—Finger
 Cold—Gould
Adrift on an Ice-pan, Labrador Days—Grenfell
A Conquest of Tibet—Hedin
To the North—Mirsky
Alone Across the Top of the World—O'Brien
South of the Sun—Owen
North Pole, Its Discovery in 1909—Peary
Scout to Explorer—Siple
South of Zero—Ross
The Friendly Arctic—Stefansson

The Untold Story of Exploration—Thomas
Tschiffely's Ride—Tschiffely

On the Sea and Under

Through the Hawse-Hole—Anderson
*The Log of Bob Bartlett, Sails Over Ice, Trails Over
 Ice*—Bartlett
*Half Mile Down, Arcturus Adventure, Exploring the
 Depths of the Ocean, Nonsuch*—Beebe
On the Bottom—Ellsberg
History of Piracy—Gosse
Consigned to Davy Jones, The Half Deck—Grant
The Tale of a Shipwreck—Hall
Westward Bound in the Schooner Yankee—Johnson
Fourteen Years a Sailor—Kenlon
Sailing Alone Around the World—Slocum
By Way of Cape Horn, The Grain Race—Villiers
20 Years Under the Sea—Williamson

In the Air

Skyward—Byrd
Skyways to a Jungle Laboratory—Cfile
Our Airmen—Crumpp and Newton
The Fun of It—Earhart
Around the World in Eighteen Days—Ekins
Heroes of the Air—Fraser
Jump!—Glassman
Up—Gray
Skyway to Asia—Grooch
Once to Every Pilot—Hawks
Historic Airships—Holland
Cruisers of the Air—Hylander
Flying with Lindbergh—Keyhoe
North to the Orient—Anne Morrow Lindbergh
On the Wing, Pioneers of the Flying Age—Masters
Knights of the Air—Maitland
Around the World in Eight Days—Post and Gatty
Air Adventure—Seabrook
The Sky's the Limit—Tomlinson
Conquering the Air—Williams
Flying the Arctic—Wilkins

Fighting Men

Boots and Saddles—Custer
Fighting for Fun—Egan

Rough Riders—Hagedorn
Revolt in the Desert—Lawrence
Count von Luckner, The Sea Devil; Raiders of the Deep
—Thomas
Lives of a Bengal Lancer—Yeats-Brown

More Thrills and Hazards

SOS To the Rescue—Baarslag
My Thirty Years of Speed—Campbell
First Over Everest—Fellowes
The Pilots' Book of Everest—Marquis of Douglas and
Clydesdale, and M'Intyre
Men and Mountains—M. Ilin, pseud. (Marshak)
The Naked Mountain—Knowlton
Men of Danger—Thomas
The Story of Scotland Yard—Thomson

BIOGRAPHY

Statesmen and Leaders

Sam Adams—Miller
The Adams Family—Adams
Albert of Belgium: Defender of Right—Cammaerts
Brandeis—Lief
William Jennings Bryan—Williams
Disraeli—Maurois
Franklin—Fay
The Many-Sided Franklin—Ford
Boy's Life of Benjamin Franklin—Nicolay
Mahatma Gandhi: His Own Story—Andrews
Justice Oliver Wendell Holmes—Bent
Andrew Jackson—James
The Living Jefferson—Adams
Genghis Khan—Fox
Lafayette—Latzko
Robert E. Lee—Winston
Life of Lincoln—Charnwood
Abraham Lincoln, The Prairie Years—Sandburg
Abraham Lincoln—Schurz
Sawdust Caesar—Seldes
Theodore Roosevelt, Boy and Man—Morgan
Theodore Roosevelt—Pringle
Roosevelt, the Story of a Friendship—Wister
Queen Victoria—Strachey
The True George Washington—Ford

Boy's Life of Washington—Nicolay
George Washington—Scudder
Woodrow Wilson—Baker
Champions of Democracy—Cottler
Rulers of America—Rochester

Men of Action and Adventure

The Life of Vice-Admiral Bligh—Mackeness
Daniel Boone and the Wilderness Road—Bruce
Davy Crockett—Rourke
Paul Jones—Seawell
T. E. Lawrence of Arabia—Edmonds
Colonel Lawrence—Liddell Hart
Boy's Life of Colonel Lawrence—Thomas
Pere Marquette, Priest, Pioneer, and Adventurer—Rep-
plier
*The Great Commodore: The Exploits of Mattheio Cal-
braith Perry*—Barrows
The Epic of Captain Scott—Lindsay
Earth Conquerors (the great explorers)—Mitchell

Heroes of the Air

Bernt Balchen, Viking of the Air—Lawrence
Dick Byrd, Air Explorer—Green
Struggle (Life of Byrd)—Murphy
C. A. Lindbergh—Every and Tracy
Lindbergh, the Lone Eagle—Fife
Our Airmen—Crump and Newton
Heroes of the Air—Fraser
Knights of the Air—Maitland
Flying the Arctic—Wilkins
Test Pilot—Jimmy Collins
On the Wing: Pioneers of the Flying Age—Masters

Lives of Writers

Schooldays with Kipling—Beresford
Boy's Life of Mark Twain—Paine
Mark Twain—Leacock
Youth's Captain: the Story of Ralph Waldo Emerson—
Hawthorne
Along This Way—James Weldon Johnston
Vachel Lindsay—E. L. Masters
Young Walter Scott—Gray
Sir Walter Scott—Buchan

A Life of Stevenson—Overton
Charles Dickens—Leacock

Masters of Science and Invention

Audubon—Rourke
Singing in the Wilderness (Audubon)—Peattie
New Creations in Plant Life (Life of Luther Burbank)—Harwood
Conqueror of Space, De Forest—Carneal
Boy's Life of Edison—Meadowcroft
Thomas Alva Edison—Jones
Edison: His Life and Inventions—Dyer and Martin
Anthony von Leeuwenhoek and His Little Animals—Dobell
A Genius in the Family—H. P. Maxim
Noguchi—Eckstein
Life of Nobel—Schuck and Sohlman
The Great Physician (Sir William Osler)—Edith G. Reid
Life of Pasteur—Vallery-Radot
From Immigrant to Inventor—Pupin
James Rumsey—Turner
Magician of Science (Steinmetz)—Hammond
Loki: Life of Steinmetz; Crusaders of Chemistry—Leonard

Groups of Scientists

Men of Science—J. G. Crowther
Microbe Hunters, Hunger Fighters, Men Against Death—De Kruif
Crucibles—Jaffe
Green Laurels (Great Naturalists)—Peattie
American Men of Science—Suttell
Great Men of Science—Lenard
Masters of Science—Towers
Great Men of Science—Wilson

Autobiography

Native's Return—Adamic
Twenty Years at Hull House—Addams
My Life as an Explorer—Amundsen
Up the Years from Bloomsbury—Arlliss
Americanization of Edward Bok—Bok

Skyward—Byrd

Autobiography of Buffalo Bill—W. F. Cody

Autobiography—Franklin

Forty Years for Labrador, A Labrador Doctor—Grenfell

Story of My Life—Keller

Autobiography, Letters to His Children—Roosevelt

Boy on Horseback, Autobiography—Steffens

Windows on Henry Street—Wald

Up from Slavery—B. T. Washington

Autobiography (of an architect)—Frank Lloyd Wright

Other Interesting People

Poor John Fitch—Thomas Boyd

Boy's Genghis Khan—Lamb

Morgan the Magnificent—Winkler

Paul Robeson, Negro—E. C. Robeson

The Roeblings—Schuyler

Joan of Arc: Self Portrait—compiled by Trask

Twenty Years Under the Sea—Williamson

Gentleman Johnny Burgoyne—Huddleston

Stephen Foster, America's Troubadour—Howard

ECONOMICS, POLITICS, AND INTERNATIONAL AFFAIRS

The Story of the Supreme Court—Bates

Wither Mankind, Towards Civilization—Beard

Men and Machines; Rich Land, Poor Land—Chase

Sweden, The Middle Way—Childs

I Write As I Please—Duranty

Merchants of Death—Engelbrecht and Hanighen

Successful Living in the Machine Age—Filene

Inside Europe—Gunther

The War in Outline—Liddell Hart

Man's Worldly Goods—Huberman

The Robber Barons—Josephson

Propaganda and the News—Irwin

The United States in World Affairs—Lippman

Road to War—Millis

American Labor Struggles—Yellen

"Halt!" Cry the Dead—Barber

Now It Can Be Told—Gibbs

SCIENCE

History of Science

- A History of Science*—Dampier-Whetham
- The March of Science*—Garbedian
- Short History of Science*—Sedgewick and Tyler
- The Story of Modern Science*—Williams
- Development of the Sciences*—Woodruff
- Great Moments in Science*—Lansing

Frontiers of Science

- The New World of Science*—Collins
- Outposts of Science*—Jaffe
- Century of Progress*—Beard
- Science Remaking the World*—Caldwell and Slosson
- The Advance of Science*—Davis
- The World of Science*—Fenton
- The Next Hundred Years*—Furnas
- Major Mysteries of Science*—Garbedian
- The World of Modern Science*—Infeld
- This Scientific Age*—Jackson and Jones
- Scientific Progress*—Jeans and others
- Science and Life, Science and the New Civilization*—Millikan
- New World of Physical Discovery, Miracles*—Darrow
- The New Reformation, Romance of the Machine*—Pupin
- Science and the Scientific Mind*—Saidla and Gibbs
- Keeping Up with Science, Easy Lessons in Einstein, Chats on Science*—Slosson
- Outline of Science*—Thomson
- Science for a New World*—Thomson and Crowther, ed.
- The New Decalogue of Science*—Wiggam
- Marvels of Science*—Wisehart
- Rockets Through Space*—Cleator

Wonders of the Universe

- A. B. C. of Relativity*—Russell
- The Expanding Universe*—Eddington
- The Universe*—Allen
- The Mechanism of Nature*—Andrade
- A Biography of Mother Earth*—Williams
- Down to Earth*—Croneis and Krumbein
- The World of Fossils*—Fenton
- The Story of Geology*—Benson
- The Story of the Gems*—Whitlock
- The Living Past*—Merriam

- The Story of a Thousand-Year Pine*—Mills
- Our Mobile Earth*—Daly
- The Stars, Flights from Chaos*—Shapley
- Through Space and Time, The Stars in Their Courses*—Jeans

- Astronomy for the Layman*—Frank Reh
- Man and the Stars, Radio and the Stars*—Stetson
- Weather*—Free and Hoke
- Drama of the Weather*—Shaw
- A Book About the Weather*—Talman
- Boy's Book of Astronomy*—Swezey and Gable
- Exploring the Upper Atmosphere*—Fisk

The World of Nature

- The Earth for Sam, The Sea for Sam*—Reed and Bronson
- Canary: The History of a Family*—Eckstein
- Our Bird Friends and Foes*—Du Puy
- Birds of America*—Emeritus
- Animals Looking at You*—Eipper
- Birds in the Wilderness*—Sutton
- Training of Wild Animals*—Bostock
- Parade of the Animal Kingdom*—Hegner
- My Animal Friends*—Brown
- The Life Story of Beasts*—Daglish
- Fang and Claw*—Frank Buck
- Strange Animals I Have Known, The Book of Prehistoric Animals*—Ditmars
- Before the Dawn of History*—Knight
- The Arcturus Adventure, Galapagos, Log of the Sun, Sargasso Sea*—Beebe
- Seeds*—Vernon Quinn
- Plant Autographs and Their Revelations*—Bose
- Our Friends, The Trees*—P. G. Cross
- Wild Flowers*—House
- Fighting the Insects*—Howard
- The Life of the Spider*—Fabre
- Green Laurels*—Peattie
- Journey in Brazil*—Agassiz
- Studies in Natural Science*—Drachman
- Nature's Secrets*—Fisher
- A Naturalist in Brazil*—Guenther
- Nature Traits*—Lange
- Naturalist on the Prowl*—Pitt

Chemistry and Physics and Medicine

The Structure of the Atom—Andrade
Chemistry in Modern Life—Arrhenius
Chemistry in Agriculture—Chamberlain
Marvels of Modern Chemistry—Clarke
The March of Chemistry, The Boy Chemist—Collins
Chemistry and Civilization—Cushman
Inside the Atom—Davies
The Story of Chemistry—Darrow
Curiosities of Science—Fabre
The Chemical History of a Candle—Faraday
Chemistry in the Service of Man, The Spirit of Chemistry—Findlay
The Romance of Chemistry—Foster
Chemistry Triumphant—Hale
Romance of the Atom—Harrow
Chemistry and the Home, Chemistry in the Day's Work, Chemistry in the World's Work, Chemistry in Industry—Howe
Three Centuries of Chemistry—Masson
Chemistry of Familiar Things—Sadtler
Creative Chemistry—Slosson
History of Chemistry—Venable
From Amber to Amperes—Greenwood
Renaissance of Physics—Darrow
The World Around Us: A Modern Guide to Physics—Karlson
The Mysterious Universe—Jeans
Concerning the Nature of Things, The World of Sound, Electricity—Bragg
The Science of Radiology—Glasser
Simple Science, More Simple Science—Huxley and Andrade
The Romance of Medicine—Clendening
Hunger Fighters, Microbe Hunters—de Kruif
The Lame, the Halt, and the Blind—Haggard
Chemistry in Medicine—Steiglitz

Discovery and Invention

Marvels of Scientific Invention—Corbin
Boy's Own Book of Science, Boy's Own Book of Inventions—Darrow

Stories of Useful Inventions—Forman
Discovery, the Spirit and Service of Science—Gregory
Stories of Scientific Discoveries—Hammond
Peaks of Invention—Leeming
Great Inventors and Their Inventions—McFee
Scientific Inventions, Achievements, and Discoveries; Many Inventions—Van Loon

Applied Science and Engineering

(See also Engineering page 166)

Men and Machines—Chase
Man, The Modern Miracle Maker—Van Loon
Creative Knowledge—Bragg
Heels, Wheels, and Wire—Rogers and Beard
Old Wires and New Waves—Harlow
Communication—Woodbury
Advancing America—Denison
Television—Hathaway
The Story of Bridges—Black
Turning Night Into Day—Ilin
Moving the Earth—Burton
The Story of Engineering—Fraser
Time Telling Through the Ages—Brearley
Marvels of Modern Mechanics—Wilkins

INDUSTRIAL PROCESSES

From Forest to Furniture: The Romance of Wood—Sherwood
Lumberjack—Meader
Logging—Bryant
A-Rafting on the Mississippi—Russell
Blazed Trail, The Forests, The Riverman—White
Big Timber—Sinclair
Railway Engines of the World—Reed
A Century of Railroads in Our America—Henry
The Romance of the Rails—Laut
The Shipbuilding Industry—Kelly and Allen
Representative Industries of the United States—Warshaw
Everybody's Business—Parsons
Engineering Materials and Processes—Ashe and Hale
Materials of Construction—Pulver
The Book of Metals—Wilhelm

Our Mineral Civilization—Read
A Year in a Coal Mine—Husband
Romance of Modern Mining—Davidson
Mining Methods—Mitke
The Story of Iron—Smith
The Iron Puddler, The Story of Copper—Davis
Non-technical Chats on Iron and Steel—Spring
Earth Oil—Egloff
Petroleum and Its Products—Gruse
Oil Wells in the Woods—O'Day
Oil Fields in the United States—Ver Wiebe
The Story of Gold and Silver—Basset
Lead, the Precious Metal—Harn
Rubber: A Story of Glory and Greed—Wolf
The Reign of Rubber—Geer

AVIATION

Flying for 1937—Mingos
The Wonder Book of the Air—Allen and Lyman
This Flying Game—Arnold and Eaker
An Alphabet of Aviation
Aircraft and the Air—Sargent
The Seven Skies—Guggenheim
Air Navigation—Duncan
Civil Airports—Black
Sky High—Hodgins
Manual of Flight—Elm
Skycraft—Post
Skyways—Mitchell
Practical Flight Training, How to Fly, Learning to Fly
for the Navy—Studley
Up Ship!—Rosendahl

SHIPS AT SEA

The Story of Sail—Clowes
Forty Famous Ships—Culver and Grant
History of American Sailing Ships—Chapelle
Ships that Have Made History—Robinson
Beneath Tropic Seas—Beebe
Ships and the Sea—Talbot Booth
Ships of the Seven Seas—Daniel
The Book of Old Ships—Grant
Clipper Ships of America and Great Britain—La Grange
Ships—Van Loon
Men, Fish, and Boats—Stanford

ART AND ARCHITECTURE

Vision and Design, Transformations—Fry
Experiencing Pictures—Pearson
Modern Art, Men of Art—Craven
History of American Painting—Isham
American Art—Sargent
Etchers and Etchings—Pennell
Vincent Van Gogh—Graefe
Leonardo, the Florentine—Taylor
Voyaging, Wilderness, N by E—Kent
Paintings: An Introduction to Art—Bulliet and MacDonald
Horizons—Bel Geddes
Building to the Skies—Bossom
The New World Architecture—Cheney
Houses in America—Robinson
The Enjoyment of Architecture—Hamlin
The A. B. C. of Architecture—Price
Wonder Tales of Architecture—Lamprey
The Story of Skyscrapers—Morgan
The Story of Architecture (from Rameses to Rockefeller)—Whitaker
Modern Architecture—Frank Lloyd Wright

HOBBIES

Hobbies for Everybody—by fifty hobby fans (Lamp-land, ed.)
Book of Hobbies—Taussig and Meyer
How to Ride Your Hobby—Collins

Nature

The Art of Bird-Watching—Nicolson
The Complete Aquarium Book, Goldfish Varieties and Tropical Aquarium Fishes—Innes
Dogs: Their Care and Training—Meyer
The Dog Owner's Handbook—Bowers
Thrills of a Naturalist's Quest—Ditmars
Adam's Profession (Gardening)—Meade
The Rock Garden—Wilder
The Living Garden—Salisbury

Science and the Laboratory

Let's Look at the Stars—Frost
Handbook of the Heavens, by and for members of the

Junior Astronomy Club of the American Museum of Natural History

Beginners' Star Book—Murphy

The Microscope Hobby—Yates

Photography Today—Spencer

You and Your Camera—Pessels and King

New Ways in Photography—Deschin

Boy's Book of Newsreel Hunters—Crumph

Radio—Davies

Radio Operating—Nelson and Hornung

The Scientific American Boy—Bond

Fun with Electricity—Collins

Experimental Electrical Engineering—Karapetoff

Book of Electrical Wonders—Hawks

The Amateur Machinist, How to Understand Chemistry—Collins

Sports and Games

Roughing It Smoothly—Jessup

Sportcraft for All the Year—Van Horn

Play the Game—Mitchell and Charnley, ed.

Football Plays for Boys—Barbour

Swimming Is Fun—Smith

Small Boat Sailing—Knight

Learning to Sail—Calahan

Just Fishing—Bergman

Tennis—Wills

Beyond the Game (Tennis)—Jacobs

Fifty Years of American Golf—Martin

Skiing—Proctor and Stephens

The Boy's Book of Strength—Crompton

Quicker than the Eye—Mulholland

The Year 'Round Party Book—Young and Gardner

Making Things

Tin-Can Craft—Hamilton

Cork Ships and How to Make Them—Adams

Wood Carving as a Hobby—Faulkner

Whittling and Woodcarving—Tangerman

Model Airplanes—Collins

Building and Flying Model Aircraft—Garber

The Book of Gliders—Teale

The Boy's Book of Model Aeroplanes—Allen

Boy's Bird House Architecture—Baxter

How to Work with Tools and Wood—Stanley

The Boys Builder—Hamilton

The Modern Handybook for Boys—Bechholdt

Collecting

Chats on Old Coins—Burgess

Stories Postage Stamps Tell—Rothschild

How to Build a Stamp Collection—Thoyes

The Young Stamp Collector's Own Book—Butler

Collecting Stamps for Fun and Profit—Collins

Music, Art, and the Theatre

The Layman's Music Book, The Magic World of Music
—Stokowski

The Man with the Baton—Ewen

The Book of Musical Knowledge—Elson

The Story of Music—Bekker

The Standard Opera and Concert Guide—Upton and
Borowski

New Backgrounds for a New Age—E. A. Park

Sketching as a Hobby—Guptil

You Can Draw—Garfield

The Art of Playgoing—Brown

The Stage Is Set—Simonson

Scenery Then and Now—Oenslager

Be a Puppet Showman—Bufano

VOCATIONS

On Choosing a Career and Getting a Job

Finding a Job—Babson

Find Yourself—Cohen

Getting a Job and Getting Ahead—Fancher

I Find My Vocation—H. D. Kitson

Your Biggest Job, School or Business—Henry Smith

Which Occupation?

Occupational Orientation—Bennett and Older

Outline of Careers—E. L. Bernays, ed.

My Life Work—Cooley and others

Careers Ahead—Cottler and Brecht

Opportunity Ahead—Ernst and White

Occupations—Gowin, Wheatley, and Brewer

Careers—The Institute for Research, Chicago (about
75 pamphlets)

Trade Foundations—Guy M. Jones, publisher
The Choice of an Occupation—Yale University, Department of Personnel Study
Planning Your Future—Myers, Little, and Robinson
Choosing a Vocation—N. Y. State Education Department (21 pamphlets)
New Careers for Youth—Pitkin
Careers—Rodger
Choosing Your Life Work—Rosengarten
Guidance Leaflets—U. S. Office of Education (22 pamphlets on professions)

Architecture and Building Trades

Building to the Skies: The Romance of the Skyscraper—Bossom
Houses in America—Robinson
Wonder Tales of Architecture—Lamprey
The Story of Skyscrapers—Morgan
The A. B. C. of Architecture—Price
Modern Architecture—Frank Lloyd Wright
The Shipbuilding Industry—Kelly and Allen
The Building Trades—Shaw
Building and Metal Trades—Cooley, and others

Aviation

Opportunities in Aviation—Hinton
This Flying Game—Arnold and Eaker
 (See also "Aviation" page 162)

Chemistry

Marvels of Modern Chemistry—Clarke
The March of Chemistry—Collins
Opportunities in Chemistry—Hendrick
Chemistry in Industry—Howe
 (See also "Chemistry, Physics, and Medicine" page 160)

Engineering

Vocational Guidance in Engineering Lines—American Association of Engineers
Engineering as a Career—A Series of Papers by Eminent Engineers
What Engineers Do—Binger
The Engineer—Hammond

The Profession of Engineering—Jackson and Jones, ed.
Engineering as a Profession—Mott
The Engineer, His Work and His Education—Sackett
Building an Engineering Career—Williams
Engineer and Chemist—Their Careers and Education—Polytechnic Institute of Brooklyn
Electrical Engineering—Office of Education, Leaflet No. 12
Civil Engineering—Office of Education, Leaflet No. 11
Civil Engineering as a Career—National Research Council
The Young Man and Civil Engineering—Swain
Mechanical Engineering—Office of Education, Leaflet No. 13
Mechanical Engineering as a Profession—Department of Mechanical Engineering, Yale University
Metal Trades—Lutz
Machines and How They Work—Gibson
Tools and Machines—Barnard

Work in Other Fields

Careers in Advertising—James, ed.
Men of Earth (Agriculture)—Lord
World of Business—Babson
Young Man in Business—H. L. Davis
On Going Into Business—Baker, Kennedy, and Malott
Representative Industries—Cooley and others
This Business of Exploring—Roy C. Andrews
The Printing Trades and Their Workers—Clark
Printing and Servicing Trades—Cooley and others
Making a Living in Radio—Bouck
Meet the Sciences—Williams and Wilkins
Jobs for the College Graduate in Science—Menge

HUMOR AND WIT

Houseboat on the Styx; Pursuit of the Houseboat, Mr. Bonaparte of Corsica—Bangs
My Ten Years in a Quandary, Of All Things, The Early Worm—Benchley
Don Quixote—Cervantes
Innocents Abroad, Connecticut Yankee in King Arthur's Court—Clemens
Roughing It De Luze—Cobb

Best American Humorous Stories—Jessup
Roundup—Lardner
Nonsense Novels, Funny Pieces, Literary Lapses, Behind the Beyond—Leacock
Twenty-eight Humorous Stories—Rhys
Parody Outline of History, Aunt Polly's History of Mankind—Stewart
Casting Away of Mrs. Lecks and Mrs. Aleshine—Stockton
Tall Stories—Thomas
Page Mr. Tutt—Train
Leave It to Psmith, Mr. Mulliner Speaking, The Intrusion of Jimmy—Wodehouse
Laughing Muse—Guiterman
The Middle-Aged Man on the Flying Trapeze—Thurber

FIRST YEAR FAVORITES

Sea Tales

Cruise of the Hoppergrass—Adams
Four Afloat—Barbour
Midshipman Farragut—Barnes
Sails Over Ice—Bartlett
The Cruise of the Cachalot—Bullen
Pirates of Malabar—Bulliford
Back to Treasure Island—Calahan
Courageous Companions—Finger
Winds of Chance—Farnol
Great Pirate Stories, The Jolly Roger—French
Half Deck, Consigned to Davy Jones—Grant
The Dark Frigate, The Mutineers—Hawes
In the Sargasso Sea—Janvier
Captains Courageous—Kipling
Mutiny on the Elsinore—London
Cruise of the Cuttlefish—Lynde
Midshipman Easy, Masterman Ready—Marryatt
Jim Davis—Masefield
Trade Winds, Swift Rivers—Meigs
Pearl Lagoon, The Derelict—Nordhoff
Privateers of '76—Paine
The Ship Without a Crew, Hurricane Weather, Wind in the Rigging—Pease

Book of Pirates—Pyle
Captain Blood, The Sea Hawk—Sabatini
Porto Bello Gold—Smith
Whalers of the Midnight Sun—Villiers

School and Sports Stories

The Scoring Play, Behind the Line, The Crimson Sweater—Barbour
The Big Row at Rangers—Carr
Cattle Ranch to College—Doubleday
Honor of Dunmore—Daniel
Making the Nine—Dudley
Working Through at Lincoln High, That Year at Lincoln High—Gollomb
Team Play, Sporting Chance—Haines
The Spirit of the Leader, Backfield Count—Heyliger
The Varmint, The Tennessee Shad, Prodigious Hickey, Skippy Bedelle—Johnson
Captain of the Eleven, Last Lap—Knipe
First Down, College Years, Campus Days—Paine
Big Game—Perry
Freshman Dorn, Pitcher; Baby Elton, Quarterback—Quirk
Batter Up—Sherman
Princeton Stories, The Girl and the Game—Williams

Stories of Dogs and Other Animals

The Five-Dollar Dog—Barbour
Steeldust, the Story of a Horse—Birney
Crazy Quilt: The Story of a Piebald Pony—Brown
Valiant Dogs (Great Dog Stories)—Clarke, compiler
Baldy of Nome—Darling
Bar Sinisetr—R. H. Davis
Strange Animals I Have Known—Ditmars
Gulliver the Great and Other Dog Stories—Dyer
A Dog at His Heel—Finger
Dawgs—Gray
Roping Lions in the Grand Canyon—Grey
Wild Animal Interviews—Hornaday
Big Enough; Smoky; Scorpion, a Good Bad Horse—James
Animal Stories—Johnson
The Jungle Book—Kipling
Flash, the Lead Dog—Marsh

Stickeen—Muir

Chief of the Herd; Gay-Neck, the Story of a Pigeon;

Hari, the Jungle Lad; Ghond, the Hunter—Mukerji

Boru, The Story of an Irish Wolfhound—Dunn

Bob, Son of Battle—Ollivant

A Dog of Flanders—Ouida

Lives of the Hunted, Wild Animals I Have Known—

Seton-Thompson

Florian, Bambi—Salten

Black Beauty—Sewell

Letters of Marque, The Book of Sunnybank—Terhune

Leading a Dog's Life, A Dog-Puncher on the Yukon—

A. Walden

Igloo—J. Walden

The Long Whip—Walden and Paine

Salar the Salmon—Williamson

Just Good Stories

Log of a Cowboy—Adams

Story of a Bad Boy—Aldrich

The Great Sioux Trail—Altsheler

Spanish Ingots—Ellsberg

Flag of the Desert—Best

Massacre at Glencoe, Huntingtower—Buchan

Eagle Cliff, Pony Express—Chapman

Tow Sawyer, Huckleberry Finn, A Connecticut Yankee
in King Arthur's Court, The Prince and the Pau-
per—Clemens

The Sky Pilot, The Man from Glengarry—Connor

Snake Bit Jones—Coolidge

The Pathfinder, The Last of the Mohicans, The Spy,
The Deerslayer—Cooper

Skippy—Crosby

Dr. Grenfell's Parish, Adrift on an Ice Pan—Grenfell

King Solomon's Mines—Haggard

Cruise of the Snark, The Sea Wolf, Tales of the Big
Snows—London

Derrick Sterling—Munroe

Boy Scouts in the Maine Woods—Otis

Dragon Treasure—Pashang

Giff and Stiff in the South Seas—Pinchot

Scottish Chiefs—Porter

David Goes to Baffin Land, David Goes to Greenland,

David Goes A-Voyaging—Putnam

Men of Iron, Jack Ballister's Fortunes, Otto of the
Silver Hand—Pyle

In the Great Apache Forest—Schultz

Alan Breck Again, The Lapp Mystery—Smith

David Balfour, Black Arrow—Stevenson

Penrod, Penrod and Sam, Penrod Jashber—Tarkington

Lure of the Labrador Wild—Wallace

The Pass, River's End—S. E. White

SECOND YEAR FAVORITES

Grade III.

Book of Escapes and Hurried Journeys—Buchan

Cappy Ricks—Kyne

Innocence of Father Brown (and others)—Chesterton

Pudd'nhead Wilson—Clemens

Old Judge Priest—Cobb

Captain Macklin, Soldiers of Fortune—Davis

White Company—Doyle

Adventures of Sherlock Holmes, Case Book of Sherlock

Holmes, Return of Sherlock Holmes—Doyle

John Cameron's Odyssey—Farrell

Boy's Book of Verse—Fish

Vagabond Journey Around the World—H. A. Franck

Thundering Herd—Grey

Glorious Adventure, Royal Road to Romance, Seven

League Boots—Halliburton

Bold Dragoon and Other Ghostly Tales—Irving

Soldiers, Sailors, and Dogs—Peter B. Kyne

Cap'n Eri—Lincoln

Famous Ghost Stories—ed. by McSpadden

The Wreck of the Active—F. V. Morley

Flamingo Feather—Munroe

Smoke Eaters—O'Higgins

Falcons of France—Nordhoff and Hall

Jinx Ship—Pease

Travels of Marco Polo—Polo

Humorous Ghost Stories—Scarborough

Sailing Alone Around the World—Slocum

Paul Bunyan—Stevens

Rudder Grange, Casting Away of Mrs. Lecks and Mrs.

Aleshine—Stockton

Michael Strogoff, Twenty Thousand Leagues Under the Sea, Around the World in Eighty Days—Verne
 Baau Geste, Beau Sabreur, Valiant Dust, Soldiers of Misfortune—Wren
 The Great Detective Stories—Wright

Grade IV.

In Brightest Africa—Akeley
 Whale Hunting with Camera and Gun—Andrews
 His Soul Goes Marching On (Roosevelt)—Andrews
 Jungle Peace, Edge of the Jungle, Jungle Days, Arc-turus Adventure, Exploring the Depths of the Ocean—Beebe

Bring 'em Back Alive, Wild Cargo—Buck
 Saga of Billy the Kid—Burns
 Camping and Tramping with Roosevelt, Fresh Fields, Sharp Eyes—Burrroughs
 Skyward, Discovery—Byrd

The Prospector, The Doctor—Connor

The Whirlwind—Davis

Three Musketeers—Dumas

Little Book of Western Verse—Field

Our Navy: An Outline History for Young People—C. J. Finger

Reds of the Midi—Gras

Tales of Lonely Trails, Code of the West—Grey

Luck of Roaring Camp, Outcasts of Poker Flat—Harte

The Codfish Musket—Hewes

Campfires in the Canadian Rockies—Hornaday

The Book of a Naturalist—W. H. Hudson

Blair's Attic—Lincoln

Covered Wagon—Hough

The Drifting Cowboy, Lone Cowboy, Sand—James

Cowboy Songs—Lomax

The White House Gang—Looker

My First Summer in the Sierras—Muir

Scarlet Pimpernel, The Return of the Pimpernel, The Way of the Pimpernel—Orczy

Hunting Trips of a Ranchman, African Game Trails,

Winning of the West, Through the Brazilian Wil-

derness, Pastimes of an African Hunter, Letters to

His Children, Rough Riders—Roosevelt

Trailing the Giant Panda—Theodore and Kermit Roose-
 velt

Audubon—Rourke
 Scaramowhe, Return of Captain Blood, Fortunes of Captain Blood—Sabatini
 Boyhood of Abraham Lincoln—Sandburg
 Ranshing on Eagle Eye—Schmidt
 Quentin Durward—Scott
 Wagons Westward—Sperry
 Monsieur Beaucaire—Tarkington
 Wings of the Morning—Tracy
 Red Cockade—Weyman
 Blazed Trail, The Forest, Long Rifle, Ranchero—S. S. White
 Roosevelt, the Story of a Friendship; The Virginian—Wister

GUIDE TO READING LIST

FICTION	Page
Adventure	140
Historical Fiction	141
Novels for Older Boys	143
Novels for Everybody	144
Mystery	145
Short Stories	146
NON-FICTION	
Plays	148
Poetry	149
Essays	150
Real Adventure	152
Biography	154
Economics, Politics, and International Affairs.....	157
Science	158
Industrial Processes	161
Aviation	162
Ships at Sea	162
Art and Architecture	162
Hobbies	163
Vocations	165
Humor and Wit	167
FIRST YEAR FAVORITES	168
SECOND YEAR FAVORITES	171

INDEX

Absence	49
Advanced Pattern Making	48
Alumni	66
Applied Mathematics	31
Architectural Course	14
Architectural Drafting and Design	21
Art Course	19
Baseball	96
Basketball	100
Blueprint	69
Book Room	68
Bowling	101
Building Construction	48
C. A. Slips	50
Cheers	91
Chemical Course	15
Chemistry	37
Choosing a Course of Study	50
Clubs (arranged alphabetically)	103
College Entrance	63
Course of Study	13
Architectural	14
Art	19
Chemical	15
College Preparatory	14
Electrical	17
First Two Years	13
Mechanical	17
Structural	18
Course of Study Prerequisites	51
Cross Country	99
Electrical Course	16
Syllabus	40
Vocabulary	137
Electrical Drawing	23
English	24
Reading List	140
Vocabulary	126
Word Study	122
Faculty	6
Fire Drills	49

INDEX

Foreword	5
Forge and Acetylene Welding	43
Freehand Drawing	20
French	32
General Organization	75
Committees	76
Elections	81
Awards and Honors	84-90
German	34
Golf	100
Group Advisers	52
Health Education and Hygiene	27
Department Bulletin	53
Heat Treatment of Metals	46
Vocabulary	139
Hockey	98
Industrial Processes	28
Instrumental Musical Organizations	106
Intramural Athletics	95
Lateness	50
Library	70
Resources	71
Machine Drawing and Design	23
Mathematics	29
Math Student	69
Vocabulary	131
Mechanical Course	17
Mechanical Drawing	20
Medals and Prizes	56
Metal Work	43
Vocabulary	138
Minimum Essentials of Grammar	119
Parents Association	67
Pasces	49
Physics	39
Vocabulary	136
Placement Bureau	54
Power Laboratory	40
Preface	3
P. S. A. L. Eligibility Rules	101

INDEX

Reading List	140
Guide	173
Rifle	99
Ryerson Annex	55
Sales Bureau	68
Scholarships	64
Service Squad	110
Sheet Metal	45
Shop Management	46
Social Studies	42
Vocabulary	132
Songs	92
Squads (arranged alphabetically)	109
Strength of Materials	40
Structural Course	18
Structural Drafting	23
Structural Shop	47
Style Book	112
Survey	69
Surveying	39
Swimming	97
Tech Creed	90
Technical College Preparatory Course	14
Tech Science Bulletin	70
Tennis	98
Track	99
Valedictorian	65
Vocabulary	122
Applied Electricity	137
Chemistry	134
English	126
Heat Treatment of Metals	139
History	132
Mathematics	131
Metal Shop	138
Physics	136
Woodwork	47